# THE LANCET.

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# The Problem
OF THE
# SOLITARY CHILD.

*A Lecture delivered on Dec. 15th, 1921, at the Hospital for Sick Children, Great Ormond-street, London,*

BY ROBERT HUTCHISON, M.D. EDIN., F.R.C.P. LOND.

THE title of this lecture demands a word of explanation. It has nothing to do with the social problem of the small family or with birth-control—subjects much discussed of late both in the medical and lay press—but refers only to the therapeutic problem presented to the doctor by the solitary child. It is a very real problem, as will be found in practice, but it does not assume large proportions in hospital. In the wards and out-patient room the phenomenon of the solitary child is still rare, though not so rare as formerly; but in private practice it is met with very frequently, and social and economic tendencies render it likely to be encountered still more frequently in the future. My thesis is, briefly, that the solitary child is apt to present a number of peculiarities, physical and mental, so well-defined as to constitute a "clinical syndrome" to which one may apply the term "only-childism." What these peculiarities are we shall see in a moment. I need hardly point out, however, that the victim of "only-childism" is not of necessity an only child. Any child who is brought up alone amongst grown-up people may suffer from it. In the majority of instances, it is true, the child is the only one in the family, but you will also find well-marked examples amongst children who are "after-thoughts," born some years after their brothers and sisters; the most pronounced examples of all, perhaps, occur amongst children brought up alone by grandparents. The adopted child, curiously enough, seems to be comparatively immune to the disease. Nor is it inevitable that every solitary child should fall a victim to "only-childism." Some, possibly most, are so happily constituted by nature or are so fortunate in the character of their parents that they escape the disorder altogether, and grow up just like ordinary children.

## ENVIRONMENTAL INFLUENCES.

In order to understand the pathogeny of only-childism let us consider for a moment the peculiarities of the environment of the solitary child. A child so situated is constantly associating with grown-up people, and therefore, as it were, standing always intellectually on tip-toe, reaching up to ideas and conceptions which are beyond it. The result, on the mental side, is the development of precocity and "old-fashionedness," and on the physical side nervous strain with all its concomitants. Almost inevitably, too, the solitary child has too much attention paid to it; it is apt to come to feel that it is the most important person in the house, the pivot around which the whole domestic world revolves. A liking for the limelight and the centre of the stage is thus acquired; the child will resort to any devices, some of them quite pathological, rather than allow itself to be thrown even for a moment into the shade. Abnormal forms of naughtiness, which Dr. John Thomson has described, are common manifestations of this passion for being conspicuous. The other day I had a letter from the mother of a little boy, a pronounced case of only-childism, who had been cured by being sent away from home. After describing the enormous improvement which had resulted in his health, she went on to say—

"his self-centred ways had made him quite impossible to manage, and one had to regard him as an otherwise interesting and charming child *utterly ruined*, and so jealous that he was furious if, when he was in the room, my husband and I spoke to one another, this preventing his getting all the attention of either or both, and never happy unless literally absorbing and *holding* the whole room and every one in it!" This is an example of the passion for the limelight in one of its commonest manifestations.

Further, as the parents or guardians of the solitary child have all their eggs in one basket, they naturally enough tend to fuss unduly over the basket; extreme anxiety about the child's health results; every little ailment is magnified, and the resulting atmosphere of apprehension is communicated to the child himself. Matters are made worse by the habit, so frequent with such parents, of discussing the child's health in his presence, with the result that he becomes in time a veritable little hypochondriac.

## "ONLY" AND "SPOILT" CHILD NOT SYNONYMOUS TERMS.

With all this it would be a complete mistake to suppose that the "only" child and the "spoilt" child are synonymous terms. The mother will often, and rightly, repudiate with indignation the suggestion that her child is spoilt; one must be careful in practice not to seem to imply that such is the view you take of the case. For the patient is probably not over-indulged, he is only over-studied, which is quite a different thing. As a matter of fact, the mother of the only child is often over-conscientious in her discharge of her maternal duties. She studies books on mothercraft, belongs to parents' unions, and often keeps a progress book in which every stage in the physical and mental development of the child is noted down day by day. The only thing she lacks, in fact, is a saving sense of humour. Like that rather priggish character, Wordsworth's Happy Warrior, she also makes her child's "moral being her prime care," and is for ever correcting, exhorting, and forbidding. By so doing she induces in the child what plain people term "cussedness," or "contrariness," but what it is now the fashion to speak of as "negativism"—a state of mind in which the child has an uncontrollable tendency to do what he ought not to do and to leave undone what he ought to do, with a result that there is no health left in him. This mental condition is the explanation of the refusal to take food, the refusal to sleep, the refusal to defæcate, and all the other refusals which are characteristic of the solitary child.[1]

## COMMON FORMS OF NEGATIVISM.

You will see, then, that only-childism is a complex condition made up of physical, mental, and moral ingredients. Physically the child who suffers from it is thin, restless, and nervous; he eats, digests, and sleeps badly and tires easily. Mentally he is excitable, emotional, precocious, introspective, and hypochondriacal; morally he is disobedient, troublesome, and often ill-tempered and "impossible." Any one of the components of the clinical picture may be unduly prominent and the child brought to you for that as the presenting symptom. Thus it may be the thinness that excites the mother's alarm, and makes her fear tuberculosis, or it may be "nervousness," or some disturbance of digestion or sleep that causes her to seek advice. Very often it is one of the aspects of "negativism" which will lead to your being consulted—oftenest of all, in my experience, the refusal of food. I find, for instance, that of nine children brought to me in recent months for anorexia eight were solitary. The anorexia is often of a profound character. It is not the mere "picksomeness" (to use the graphic phrase of the out-patient mother) met with in dyspeptic children, but an absolute refusal to eat at all—resembling the hysterical anorexia of young women—or even to look at food. It may begin quite early, when an attempt is first made to wean the child from the bottle or breast. When solids are given he hawks and retches and spits them out, whilst if liquids are given, otherwise than by

[1] For an excellent description of negativism and its manifestations the reader should consult Dr. Hector Cameron's book on "The Nervous Child." (Oxford Medical Publications.)

suction, he gargles with them and brings them back. Sometimes the poor mother gives up the attempt to stop bottles in despair, fearing that the child will be starved; I once saw a child who had been kept entirely on the bottle for this reason until he was four years old. If the child is older when the anorexia first sets in it will be found that he begins to play with his food instead of eating it. Soon meal-times become a perfect nightmare for the mother and nurse, and all kinds of attempts are made by coaxing, bribing, and distracting the child's attention to induce him to eat, without success. Curiously enough, such a child will often take his food quite well from a stranger, or if other children are present, although he will refuse it absolutely from the mother or his usual nurse. Another curious fact which I have noticed in these cases is that in spite of apparently eating almost nothing the child often remains in quite a fair state of nutrition. Whether this is due to the consumption of food on the sly I do not know; in many cases this explanation seems hardly likely.

Closely akin to the refusal of food is the refusal to defæcate, in which case the child will be brought to you for "constipation." I remember just before the war seeing an only child, the daughter of a highly hysterical German mother, who had been dragged round to most of the children's specialists in Europe for the cure of supposed "constipation." The mother's description of the case and the pronounced features of only-childism in the patient made it clear that one had to do with a case of negativism. I explained the situation to an incredulous mother, and heard nothing more of the patient for a few weeks, when I received a telegram (covering eight telegraph forms) informing me that the child had intestinal obstruction, and was to be operated on next day, and asking me to come and see it at once. I went, and found that although the bowels had not been open for a week there were no signs of obstruction. The child was taken into a nursing home for observation, and from that moment the bowels acted regularly without difficulty. I then told the mother quite frankly that the only hope for the child was to get it away from her for a time. My frankness was rewarded by receiving two days later 15 typewritten foolscap pages of abuse of the medical profession in general and myself in particular for failing to understand her darling's case.

"Breath-holding" is another trick often met with in the solitary child, but it is difficult to say whether it is an aspect of "negativism," or whether it is an expression of the desire to be conspicuous and interesting. In such a case when the child is annoyed at anything he immediately holds his breath, turns black in the face, and may even fall down in something closely resembling a fit. This condition, if improperly treated, may recur several times in the day; the unfailing remedy is to dash cold water in the child's face, and after a time even the threat of this is sufficient to check an attack. I remember a very severe case of it in a little boy, the only child of American parents—in America, by the way, only-childism seems to be specially common—who had such alarming attacks that in one of them he was picked up and plunged into a cold bath, clothes and all. The remedy, though drastic, was quite successful.

### ONLY-CHILDISM AS A COMPLICATION OF ORGANIC DISEASE.

It would be tedious and unnecessary to dwell upon all the functional manifestations for which the solitary child may be brought to a medical man—but I should like to say something of only-childism as a complication of organic disease, for it is well to remember that just as it has been said that "even a Jew may have organic disease," so even an only child may be seriously ill. Now of all "bad patients" such a child is about the worst. Difficulties begin at the very outset, when an attempt at examination is made. Quite often a fit of negativism—i.e., cussedness—will come on, and he will refuse to allow himself to be examined at all—refuse to put out his tongue, shriek at the sight of the stethoscope, and even throw himself on the floor in a paroxysm of rage and struggling. Any proper examination of the throat in a case of only-childism is almost a physical impossibility, except by the exertion of the united force of two strong adults. Supposing one is successful in examining the child, every obstacle is still offered to treatment. Negativism will lead to a refusal of proper food and to the spitting out of medicines; every pain will be exaggerated, and between the general impossibility of the patient and the fussing of the parents the doctor's hair is apt to be turned grey and the nurse driven to a nervous breakdown.

### THE SOLUTION OF THE PROBLEM.

These, then, are some of the problems presented to you by the solitary child, and I wish now to say something as to their solution. The obvious way out of your difficulties, of course, is to abolish the "solitariness," but this is more easily said than done. The more sensible mothers sometimes make an attempt at it by such pathetic devices as "often having the little cousins in to tea," but such remedies partake of the nature of pills for earthquakes. Even the importation of another child into the house in the capacity of a permanent boarder does not often succeed. As one mother, who had tried this plan in vain, put it to me, "I find it is always a case between them of *my* mother and *your* mother." In other words, each child fully understood that it was still the "one and only" in the eyes of its own parents—that is to say, it was still "in the limelight." Failing anything better, a few hours spent daily at a kindergarten is of some use in little children. This ensures that at least for a time the patient has to take his place on an equality with other children, even though when at home he is still the centre of the picture. The outside interest which school brings into the self-centred child's life is also of curative value. For older children, and if the parents can afford it, and, what is equally important, will give their consent, a boarding school is an unfailing remedy. It at once abolishes the solitariness, and there is no longer any excuse for "negativism"; school discipline, unlike that of the home, is automatic and impersonal—all come under it alike, and it does not arouse a sense of personal grievance as it does when applied to the individual. Mothers of only children are always afraid that their child will never get on at a boarding school—"he is too nervous," or "he will be too homesick." I can only say that I have hardly ever found it so; in the great majority of cases the child soon settles down comfortably, and his health and happiness are immeasurably improved. One term's experience is usually enough to convert the most recalcitrant parent. If the child is not old enough for the ordinary preparatory school a "nursery school" in the country, of which there are now some in existence, answers the purpose equally well. In the case of particular symptoms of "negativism," such as the refusal of food, of defæcation, or of sleep, even a short stay away from home, or merely handing the child over for a time to the care of a strange nurse, may suffice to abolish the symptom. I recall, for example, the case of a little girl, the only child of a country vicar, whose mother looked after her entirely herself and who suffered from pronounced anorexia. I proposed to the mother that a trained nurse should be put in charge of the child, but was met with a blank refusal. Shortly afterwards the mother, worn out with the vain efforts to get the child to eat, had a "breakdown"; a nurse went to take care of her, and incidentally took on also the feeding of the child, with the result that in a fortnight the latter difficulty had quite disappeared.

Should you be unable, as you often will, to get the child sent from home you must do your best to change the whole mental environment in which it lives and moves and has its being. If the essential nature of only-childism is explained to the parents, and if it is shown to them as to some degree an inevitable result of circumstances, there will not

usually be much difficulty. The doctrine of wholesome neglect must be inculcated; the child must no longer be fussed over physically, and his health and peculiarities must not be discussed in his presence. He must cease to be the most important person in the house, and all manifestations of negativism should be steadily ignored—not punished, expostulated with, or wept over, but *ignored*. The parents must also remember the advice given to the young man by one of the characters in "Kidnapped." "Be souple in things immaterial"—in other words, do not fuss over and correct trifling aberrations. A steady persistence in this attitude will usually bring its reward.

When the only child is the victim of serious disease the best place is a nursing home or hospital, where he is usually as meek as a lamb. Failing that, a sensible trained nurse may soon work wonders in changing his disposition. Drugs are of little help in the management of only-childism, but, as in the case of all nervous children, bromides are often helpful. As the late Dr. Leonard Guthrie remarked, however, they often act best when given to the parents. Finally, only-childism should not be taken too tragically. The prognosis is quite favourable, for the rough and tumble of life sooner or later provides a sure, though often painful, remedy for the disease, and when the patient has grown up he will probably be very much like other people.

---

THE

# Thomas Vicary Lecture:

BEING

# A GLIMPSE INTO THE HISTORY OF THE SURGERY OF THE BRAIN.

*Delivered before the Royal College of Surgeons of England on Dec. 8th, 1921,*

BY SIR CHARLES BALLANCE, K.C.M.G.,
VICE-PRESIDENT OF THE COLLEGE.

## PART II.*

FROM the time of Hippocrates until quite recent years the technique of the operation of opening the skull underwent little if any improvement. Nor were the indications for operation better understood, for till the doctrine of localisation of the functions of the brain was accepted, no progress in diagnosis was possible. Twelfth and thirteenth century works on surgery show, however, that some at least at this period practised the operation for injury on quite rational principles: thus in a work by Roger Frugardi of Salerno, written about 1170, the advice given is that as many trephine holes as it seems necessary should be made on each side of the fissure, and the intervening bridges of bone between them divided, and after introducing a fold of linen between the bone and the dura, the injured bone should be removed.

### THE WORK OF ROGER OF SALERNO.

Dr. Charles Singer has kindly sent me two passages from this work, of which the following are translations. The writing of Roger of Salerno is important as the first post-classical work on surgery of European origin.

*On Fracture of the Skull with a Large Wound.*—"When there is considerable and obvious fracture of the skull associated with a large open wound, such as would be inflicted by a sword or some similar weapon, any fragment of bone or other substance, the removal of which is indicated, should at once be removed (unless free hæmorrhage or other complication prevents); and a fold of the finest linen should then be gently insinuated with a feather between the skull and the dura mater (to clean the wound). In the opening of the fracture a piece of linen, or, what is much better, silk should be so placed that its edges are beneath the bone, in order that matter coming from the surface should not reach the dura mater and induce a graver lesion of the brain. Marine sponge carefully cleaned and dried is also employed for this purpose; it absorbs exudations like blotting paper. The external wound should be covered with pieces of linen soaked in white of egg and lightly wrung out, over which a dressing of down should be placed and carefully bandaged, the dressings should be changed twice daily in winter and three times in summer. The patient should lie on the affected side. This treatment should be persisted in until healing of the cranium is complete."

*On the Treatment of the Skull.*—"If the wound is small it should be enlarged unless bleeding or other complication prevents. The trephine should be cautiously applied close to the fissure on each side and as many perforations made as seem necessary. Then with a chisel a cut is made from one hole to another, so that the opening reaches from end to end of the fissure and exudation can escape and should be carefully cleaned away with strips of the finest linen inserted by means of a feather between the brain and the skull."

### WALTER OF AGILON AND OTHERS.

Walter of Agilon, a thirteenth-century writer, emphasised that any dressing introduced between the skull and the dura, and particularly between the dura and the pia, should be clean. Dr. Singer writes: "Walter of Agilon lived about the middle of the thirteenth century, and was probably a Frenchman. He is sometimes associated with the Salerno School, but it is somewhat doubtful if he worked there. I send you a passage from the edition of his book to which I have referred." The following is a translation. After stating that a certain plaster if applied to the skull will show the presence of a fracture by becoming dry and breaking on removal, Walter goes on to say:—

"A fracture of the skull is known thus: there is slow fever from the first with headache, which gets a little worse each day; there is squint, the cheeks are flushed, and if a plaster is applied it quickly dries and breaks; the skin is dry. If the skull is fractured in front or behind, the cure is difficult, because in front and behind the bone is in contact with the dura without any intervening space, in other parts there is a little interval, hence a lesion of the skull in front or behind is necessarily accompanied by a lesion of the dura. And it should be remarked, as is everywhere apparent, that pledgets of flax make a better dressing between the skull and the dura mater than pieces of linen, but either when placed in a wound must be clean and more particularly so when placed between the dura and the pia mater. There may be fracture without a scalp wound or a scalp wound without a fracture. If there is fracture with a scalp wound and the scalp flap hangs loose it should be removed altogether, for if much damaged it will not be sufficiently well nourished for good cicatrisation. If, however, the fracture of the skull, with dependent skin flap, has extended to the dura mater, the scalp flap should be first sutured and a crucial incision then made in it, for the skull ought to be healed first and then the skin. But if the bone wound does not extend to the dura, the bone should be removed from the scalp flap and sutures applied. Afterwards powder should be dusted on, and an opening left at the lowest point through which a tent may be inserted. If there is a scalp wound without fracture of the skull, dusting powder should be applied before suture, and then a plaster put on. If the sutured wound does not heal well, the cautery should be passed over it from one end to the other and the wound thoroughly cauterised, afterwards it should be anointed with white ointment and healed. A wound in any part of the head which reaches the brain substance is mortal."

Dr. Singer has also drawn my attention to a beautiful illuminated surgical manuscript (MS. Sloane). It is a French work of the thirteenth century. The text is by Roger of Salerno, and the operation of trephining is illustrated. In another manuscript (Bodleian) there are eight miniatures, all of them very clear, illustrating operations on the skull. This is also of the thirteenth or the early fourteenth century. Another manuscript (Trinity College, Cambridge) contains six miniatures illustrating operations on the skull, and is of the thirteenth century.

When anatomical study was revived, attempts were made to explain the symptoms observed during life by the nature, position, and extent of the lesions found after death. The earlier writers of this period grouped their observations on intracranial disease

* Part I. appeared in THE LANCET last week.

under such headings as "de dolore capitis," "de apoplexia," "de epilepsia," "de phrenitica," following the old classification of disease by symptoms, and seeking an explanation of each particular symptom. In this way certain symptoms and groups of symptoms came to be associated with certain intracranial lesions; but much confusion prevailed, until physiological experiment furnished the true interpretation of many of the symptoms. Massa[1] (died 1569) describes a case of brain abscess that occurred in 1533. Contra-lateral paralysis is recorded, and the remark made is that such paralysis does occur in certain injuries of the head. In a folio published in 1573 by Andrea del Cruce the instruments used in trephining are elaborately illustrated; some are quite practicable, others weird-looking. It is noteworthy that in one illustration the patient is represented in the prone position, and the trephine is applied in the occipital region.

### THE SIXTEENTH AND SEVENTEENTH CENTURIES.

Fabricius Hildanus[2] (1560–1634) relates cases of brain abscess and fractures of the skull, and clearly recommends trephining for retained pus or blood even in the absence of a fracture of the skull. A fatal aural case, seen in 1599, is described very fully.

In Pepys' Diary, Feb. 3rd, 1677, this entry appears:

"To White Hall, and there to Sir William Coventry's chamber, and there staid till he was ready, talking, and among other things of the Prince's being trepanned, which was in doing just as we passed through the Stone Gallery.... With others into the House, and hear that the work is done to the Prince in a few minutes without any pain at all to him, he not knowing when it was done. It was performed by Moulins. Having cut the outward table, as they call it, they find the inner all corrupted, so as it come out without any force; and their fear is, that the whole inside of the head is corrupted like that."

Prince Rupert recovered, so the whole inside of his head was not corrupted!

Bonetus[3] (1620–1689) describes cases of meningitis, extra-dural abscess, and brain abscess, but does not seem to have adopted serious surgical measures for their relief.

### EIGHTEENTH CENTURY.

Valsalva[4] (1666–1723) drew attention to the cardinal fact in cerebral localisation that motor paralysis from a cerebral lesion is on the contra-lateral side. He noted this fact in apoplexy as well as in cases of cranial injury. He seems to have had some difficulty in getting his views on this subject accepted. He says: "I solemnly affirm that it was ascertained by many years' work and confirmed by many post-mortem examinations." *Nec silet mors* was the motto of the Pathological Society of London; and Valsalva might have written what a well-known novelist wrote: "For him who knows how to read therein, the dead body is a book in which he learns how to save human lives."[5]

Morgagni[6] (1682–1771). Valsalva held the view that abscess of the brain was a primary disease, but Morgagni made the great discovery that aural suppuration from abscess of the brain is an erroneous doctrine. "On the contrary, abscess of the brain results from suppression of discharge of the ear." He relates cases in which carious erosion had opened up a passage between the ear and the cranial cavity.

A work by Jacobus Berengarius,[7] published in 1728, contains numerous quotations from Galen, Avicenna, and others, and many fanciful remedies—for example, as an adjunct to convalescence is the recommendation that a large number of freshly baked loaves should be placed in the patient's room because this warms the air, and is wonderfully comforting, as may be known from the story of Democritus, who lived for several days solely on the smell of bread! A description of the operation of trephining is given; among the instruments figured are burrs, a trephine with outside teeth, and a gouge with a straight edge. The following sound advice is given: "Let the reader note well that when for any reason it is decided to open the skull . . . the sooner it is done the better, serious symptoms should not be awaited, nor days of election as the seventh or fourteenth" (p. 279).

[1] Liber Introductorius Anatomicæ, Venice, 1536, p. 57.
[2] Observationum et curationum chirurgicarum centuriæ (1606–1641).
[3] Sepulcretum Lyons, 1700.
[4] De Dura Humana Tractatus.
[5] Eugène Sue: Les Mystères de Paris.
[6] De Sedibus et Causis Morborum.
[7] Jacobi Berengarii De Fractura Cranii. Edition Nova 1728.

### PERCIVAL POTT.

Percival Pott[8] (1713–1788) was elected on the staff of St. Bartholomew's Hospital in 1744. His clinical records of cases are not Hippocratic. In head injuries the treatment was always "phlebotomy and an open belly." Trephining is fully described and often performed. The trephine is identical with that used by the Greek surgeons. He quotes Celsus and other authors frequently. Contra-lateral paralysis is noted casually in certain cases. He says the symptoms arising in head injury are not due to fractured skull, but to injury of the brain. He made careful post-mortem examinations, and, like Petit, considered a farcture, even without depression, an indication for operation (Vol. I., p. 135). In suppuration beneath the bone he advocates free removal of bone.

"The only chance of relief is, from laying bare a large portion of it, that the discharge may be as free, and the confinement as little as possible; nothing but this can do good; the space of time in which it may prove beneficial is very short, that once elapsed is absolutely irrecoverable; and the necessary operation for obtaining such end may full as well be totally neglected, as done by halves or too late." (Vol. I., p. 166.)

He points out that there is no special danger in trephining over the temporal bone or over the superior longitudinal sinus, and relates one successful case in which the sinus was wounded by a fragment of the fractured bone (Case 27, p. 194), and one (fatal) in which the sinus was exposed on removal of the broken bone, and he deliberately bled from it. (Case 28, p. 196.) Incision of the dura is mentioned (on p. 247). "An artificial opening therefore must be made by the division of the dura mater, and perhaps of the pia also."

### JEAN LOUIS PETIT.

Jean Louis Petit[9] (1674–1750), a great French surgeon, opens his account of the operation of trephining with the reassuring statement that it is not of itself mortal. He advised it in all cases of scalp wound with fracture, "the fracture itself indicates the trephine, not only to elevate any bone that may be depressed and remove splinters, but to give exit to blood effused between the dura and the bone." He admits that recovery sometimes occurs without operation, but says that it is better to risk operating unnecessarily in a few cases than to expose many cases of fractured skull to the risk of almost certain death. He relates a case of abscess of brain ollowing fracture that recovered—he had trephined and incised the dura mater, and the abscess subsequently burst; the brain had not been incised. This must be the case referred to by Dupuytren in a passage quoted further on in this lecture. The indications for trephining other than for fracture which Petit discusses are unconsciousness, hæmorrhage from the nose, mouth and ears, paralysis, and convulsions. The article is of considerable interest and many cases are related in it; the main argument is that if an intracranial effusion can be diagnosed operation should be done, trephining should not be done to cure convulsions, but to remove the particular cause of the convulsions. Petit uses a trephine which he named "trépan exfoliatif." It was cone-shaped,

[8] Chirurg. Works, vol. i., 1790, by J. Earle.
[9] Petit, J. L.: Traité des Maladies Chirurgicales. 1790 edition, pp. 74, 123.

and had outside teeth, like the one which came into use in London about 1893, and was supposed to be a new invention.

### JOHN HUNTER (1728–1793).[10]

Sir William Lawrence (1783–1867) said that "John Hunter was the greatest man in the combined character of physiologist and surgeon that the whole annals of medicine can furnish." While Hunter's chief contemporaries were in the main only operating surgeons, he was a philosopher, scientist, and experimentalist. He wrote of the principles of surgery, and the cases and operations he quotes are used as illustrations of facts observed or of principles which are fundamental in the science and art of surgery. It is therefore not surprising that his remarks on concussion, compression, and laceration of the brain and on fracture of the skull are models of accurate observation. He writes:—

"Fractures of the skull of themselves produce no symptoms respecting the brain, only those of broken bone. We do not trepan for concussion alone. In young people a depression fracture may give rise to no symptom at the time, but as the patient grows up bad symptoms may arise. In all cases of depression the trepan is necessary. We must not divide the dura unless we are certain that there is a fluid effused under it. Fissure fractures run sometimes through the base of the skull. I have trephined once below the insertion of the muscles of the neck and with success. A gentleman for two years after receiving a blow on the skull was delirious. I felt a little depression and applied the trepan and took out a piece of bone which had been depressed all the time, part of the internal table was absorbed and pus was lying on the dura mater."

Palmer in a note (p. 491) refers to a somewhat similar case related by Sir Astley Cooper in which there was total loss of volition and voluntary motion continued for 13 months. Cline operated and removed the depressed bone. "In four days the young man was restored to the perfect possession of his intellect."

### NINETEENTH CENTURY: ASTLEY COOPER (1768–1841).

Astley Cooper,[11] a pupil of John Hunter, discouraged operation as a preventive measure except in compound fracture of the skull.

"In simple fracture when it is attended with symptoms of injury to the brain deplete before you trephine, and when it is unattended with such symptoms though there may be depression deplete merely and never divide the scalp. If the fracture be compound the treatment must be very different because a compound fracture is followed very generally by inflammation of the brain and it will be of no use to trephine when inflammation has once formed. It might be thought that it would be time enough to perform this operation when inflammation had appeared, but this is not the case, for if inflammation comes on the patient will die whether you trephine or not."

He relates a case (p. 144) of cure of Jacksonian epilepsy caused by a spicule of bone. This was removed by operation and the patient was cured.

### LARREY (1766–1842) AND GUTHRIE (1785–1856).

Baron Larrey and Guthrie were the great French and British surgeons respectively of the Napoleonic wars—the last of the great army surgeons before the Listerian era—and both had extensive experience of war injuries of the head.

Baron Larrey[12] (1766–1842) was a prominent surgeon before Napoleon rose to power. In 1788, before the war with England, he visited Newfoundland as surgeon to a French man-of-war. Larrey considered trepanning indispensable in depressed fracture, and also to remove foreign bodies which remained near the wound in the skull, or the position of which would be determined by a probe or gum elastic catheter, even if a considerable distance from the aperture in the bone, and relates several cases in which this was done (pp. 210–215). He did not advise operation when the foreign body could not be located. He treated hernia cerebri with compresses, and did not advise a decompressive operation.

Larrey observed the effects of injury to various regions of the brain, and noted several facts of importance in cerebral localisation—e.g., contralateral palsy, loss of memory, aphasia; also that when paresis is caused by a cerebellar lesion it is on the homolateral side (p. 300); he also noted the sudden and dangerous attacks of syncope (respiratory failure) in cerebellar lesions, an account of a fatal case of otitic cerebellar abscess, and the findings at the post-mortem examination are given on pp. 315–316. Jacksonian epilepsy came under his notice; he relates one case of cure by operation, and a case of caries with abscess in which the attacks could be produced at will by pressure with the finger (p. 478). He accompanied Napoleon in his campaigns, and was so popular among the soldiers that on being recognised in the struggling mass of men on the bridge over the Beresina he was handed on from soldier to soldier till he reached the other side.

Guthrie[13] is the historian of the surgery of the Peninsular War. He records a very large number of cases he observed during and after the battles in Spain, and many also after the Battle of Waterloo. He writes:—

"Injuries of the head affecting the brain are difficult of distinction, doubtful in their character, treacherous in their course, and for the most part fatal in their results. One man may lose a portion of his brain without its being productive at the moment or even after his restoration to health of the slightest apparent functional inconvenience; whilst another will fall and shortly die without an effort at recovery. The result of my experience is, that a fracture of the skull, with even the lodgment of a foreign body and a portion of the bone in the brain, may sometimes be borne without any inconvenience in the *back* part. An injury of apparently equal extent is more dangerous on the forehead than on the back part. The part of the brain injured can sometimes be distinguished from the symptoms which take place. The rule in surgery is absolute to trepan in extra-dural hæmorrhage. Local pain and epilepsy may follow fracture and displacement of the inner table and require operation. Free incisions must be made in the scalp when it is inflamed. When operation is necessary in fractured skull it should be done at once—delay is fatal."

Guthrie here quotes the case of an officer under the care of Larrey; Larrey saw the autopsy; one frontal lobe was suppurating. Larrey remarks: "I had in this case to regret that I did not apply the trephine." "*Occasio præceps, judicium difficile.*" Guthrie also quotes from J. L. Petit in support of the view that operation is necessary. Petit, after relating the history of two cases of injury of the head, in each of which a depressed portion of bone was not elevated, and a portion of the inner table was separated and found adherent to the dura mater 10 years afterwards, says: "Two or three of such wounds out of a thousand will get well without operation, but the remainder will die without it." Guthrie writes:—

"All foreign bodies should be removed from under the dura; the wound in the dura should if necessary be enlarged. When matter is circumscribed under the dura there is some hope. The records of surgery supply many cases in which incision of the dura to give exit to pus or blood has been done or might have been done with advantage; incision of the dura is more commonly done in France than in England. Tense elevation of the dura and the absence of pulsation indicates incision; several striking cases of the advantage of incision of the dura are related."

In cases of hernia cerebri Guthrie advises gentle pressure and is averse to all operations. He was a strong opponent of the mediæval practice of repeated trephining which had apparently survived to his time, and he quotes the following case in support of his views:—

"Philip of Nassau, having been thrown from his horse, fractured his skull by striking his head against the stump of a tree. He was trepanned 27 times by a surgeon of Neomagen. He gave a certificate of this signed by himself; and as a proof of his complete recovery drank three of his companions to death."

[10] Collected works of J. F. Palmer, 1835. Vol. i., p. 486 et seq. Articles on injuries of the head and fracture of the skull.
[11] Lectures on the Principles and Practice of Surgery. Sixth edition, 1839, p. 143.
[12] Clinique Chirurgicale, vol. i., 1829.
[13] "Injuries of the Head affecting the Brain," 1847.

### THE ZENITH OF PRE-LISTERIAN SURGERY.

During the first 70 years of the nineteenth century the art of the pre-Listerian surgeon reached its zenith; but we cannot but be struck with the great prevalence of sepsis. The surgery of the brain seems to have been limited to the surgery of fracture of the cranium. However great the change from Celsus to Fergusson may have been, the change from Fergusson to the present day is incomparably greater. In a very interesting paper[14] entitled the Use of the Trephine in Depressed Fracture of the Skull, Robert Hudson, of Redruth, writes:—

"There is no subject in surgical literature which seems to have created more divergence of opinion than the employment of the trephine in depressed fracture of the cranium. In his celebrated essay Percival Pott betrays neither doubt nor hesitation: firm belief in the efficacy of the trephine is evidenced in almost every page. How then can we explain the revolution involved in the statement that in St. Bartholomew's Hospital, to which Pott's genius added lustre and renown, his views have been discarded, and for six years previous to 1867 the trephine had not been once used in an injury to the head? Around Redruth and Camborne Pott's principles still prevail, taught by Pott himself to the great-grandfathers of the present generation of surgeons."

"Talleyrand, it is said, observed that the philosophy of a previous generation might be gathered from the common people of the existing one, and it is so in this case."

On the occurrence of a head injury the first question asked by the comrades of a wounded miner almost invariably is, Is the skull broken? And if a reply be given in the affirmative, the next, When are you going to bore-un? Many of the accidents were due to blasting. It was before the invention of the safety-fuse. Forty years ago trephining was more frequent than at the present time. One surgeon, now living, tells me that during his pupilage a week rarely passed without one or two trephining operations. A very large percentage of the "bored" skulls recovered. Too much stress cannot be laid on the importance of early operation and the purity of our atmosphere which is daily swept by the Atlantic breezes. We have no reason to fear sepsis; pyæmic risks are unknown. "The elevation of a depressed bone in compound fracture of the cranium need not be looked upon as a serious and in itself a dangerous operation."[15]

Hudson gives figures which show that trephining had fallen into disrepute in London, and was attended by a great mortality.

| | | | | | |
|---|---|---|---|---|---|
| Guy's Hospital, | 1861–1868, | 51 | operations, | 39 | deaths. |
| " | " 1871–1876, | 16 | " | 12 | " |
| St. Thomas's Hospital, | 1866–1870, | 3 | operations, | all fatal. | |
| St. George's | " 1870–1877, | 16 | " | 13 | deaths. |

As illustrating the septic atmosphere of the London hospitals at this time Hudson states that in 1868, in St. George's Hospital, there were 22 cases of pyæmia, and in 1869 14 such cases, all commencing in the hospital and all ending fatally. At the end of Hudson's paper is a reference to two cases treated by Mr. Davies Colley (Guy's Hospital Reports, 1877) in which the trephine was successfully employed. Mr. Davies Colley writes:—

"These two cases support the rule which *most of our text-books omit or fail to impress* that in punctured fractures of the skull it is the surgeon's duty to *trephine at once* without waiting for symptoms of compression or irritation."

Before Listerian days little or no effort towards cleanliness was made in the theatres of the London hospitals. Indeed, I remember that in some cases the more filthy the surroundings—e.g., the surgeon's coat—the better pleased the surgeon appeared to be! Further, a post-mortem examination was not seldom attended, and perhaps fingered immediately before the performance of an operation; and as the surgeon would naturally attend an autopsy on a surgical case it would be not unlikely that the cause of death would be erysipelas or some other form of sepsis. Hudson's experience is akin to that of Baron Larrey; Larrey fully appreciated the dangers of sepsis in hospitals as they then were, and whenever he could he sent his patients right away at first, however bad they were, the same day or the day after severe operations; for he found that in spite of rough transport they did better, whether in the heat of Egypt or the rigours of a Polish winter when out on the road, than when shut up in churches or hospitals.

[14] Brit. Med. Jour., July 21st, 1877.

[15] Le Gros Clark Lectures on Surgical Diagnosis (1870), p. 89.

### HUGHLINGS JACKSON.

I was elected on the surgical staff of the National Hospital, Queen-square, 30 years ago, but I had been before this on some occasions on surgical duty there during the absence of Victor Horsley. At the National Hospital I was at once conscious of contact with two very remarkable men: Hughlings Jackson and David Ferrier. I do not include Horsley, because I had been in almost daily association with him, at the Brown Institution, for some years.

Of Hughlings Jackson I need only say that he remains in my vision as the Socrates and Lycidas of neurology. He contributed four papers[16] on Defects of Sight in Diseases of the Nervous System, one in 1863, two in 1865, and one in 1866. These papers are of extraordinary interest in the slow unravelling of the truth, with regard to the nature and cause of the optic neuritis of intracranial origin. He urged that routine ophthalmoscopic examination should be made in all cases of severe cerebral disease, whether the patient complained of defect of sight or not. Attention is directed to the headache and vomiting which occur in cases of intracranial tumour, and the danger of mistaking such symptoms for those of gastric disease. The importance is also insisted upon of ophthalmoscopic examination in cases of hemiplegia, in Bright's disease, and in cases brought in comatose. I have always thought that, independent of Jackson's mental eminence, his work at Moorfields Eye Hospital in early life was of supreme importance to the future progress of neurology. In 1865 Jackson wrote:

"It is a great mistake to suppose that the form of amaurosis (there may be no amaurosis with or even after optic neuritis) necessarily indicates disease primarily involving the optic nervous system."

Again, he described the association of headache, vomiting, and optic neuritis in cases of cerebral tumour, and laid great stress on the fact that

"the chief disease in a cerebral case in which amaurosis is a symptom, rarely involves the optic nervous system. It is just as important to determine whether a patient's blindness depends on choroiditis, apoplexy of retina, or neuritis as whether his bad talking depends on incoherence, defect of the faculty of language, or paralysis of the tongue."

In 1865 Jackson wrote:

"When I was first studying the point, it occurred to me there might be particular parts of the hemisphere, disease of which produced amaurosis; just as disease of a particular part of the left hemisphere produces aphasia. I have found disease of the right hemisphere many times with amaurosis. I was at one time *sliding* into the belief that disease of the right hemisphere was very important from the point of view of optic neuritis. In Case XII. I received a check, which prevented me *sliding* into the conclusion that disease of only the right hemisphere produced amaurosis, as disease of the left only seems to produce loss or defect of speech."[17]

In another place the sentence occurs:

"I suggest that unilateral convulsions point to disease of the opposite part of the brain, as unilateral paralysis nearly always does."

It is needless to continue making extracts from these classical papers; every paragraph teems with Hippocratic insight and wisdom.

We do not now speak of "amaurosis" as a symptom of cerebral tumour, but of optic neuritis or optic atrophy; the use of the ophthalmoscope has explained how blindness results from cerebral tumour, and this

[16] Vol. iv. and vol. v., Royal London Ophthalmic Hospital Reports.

[17] Moorfields Hospital Reports, vol. v., p. 59.

disastrous consequence can now in many cases be averted by a decompressive operation. Jackson published two pioneer lectures[18] in 1873 on the Diagnosis of Tumours of the Brain. Jackson's classical papers on Epilepsy, on the Affections of Speech, and on many other subjects I have no time to mention.

### ADVANCES IN OPHTHALMOLOGY.

In 1847 Babbage, an English mathematician, demonstrated to Wharton Jones that the interior of the eye could be seen by means of a small plane mirror, from the centre of which a small portion of the silvering had been removed. This was the primitive ophthalmoscope, but the seed fell by the wayside, and it was left to Helmholtz to introduce into practice two years later (1849) the instrument which has proved of such great importance. Helmholtz was a military surgeon, and later a professor of anatomy, who never practised as an ophthalmic surgeon; in his book[19] published in 1850 he wrote:

"I believe that all the alterations of the vitreous body and of the retina which, until now, have been found only in cadavers, will also be recognised in the living eye—a possibility which appears to promise the most remarkable advances for the hitherto undeveloped pathology of this structure."

The importance of optic neuritis and its association with cerebral lesions, now a matter of common knowledge, was soon recognised as the use of the ophthalmoscope became general. In 1860 von Graefe published a paper[20] on the association of optic neuritis with cerebral tumour, in which he pointed out that total blindness, when occurring in these cases, was not like the palsy a direct effect of the lesion, but the secondary result of optic neuritis.

"When with cerebral lesion which has caused various palsies, total blindness also results, this was formerly quite naturally attributed to paralysis of the optic nerves. If from such cases conclusions are drawn respecting the crossing of the optic nerves, physiological errors result."

### DAVID FERRIER.

The other physician whose name I mentioned was Ferrier, who belongs to that small group of great men who rediscovered and recreated the science of experimental neurology, lost to mankind since the times of Galen. Ferrier was experimenting before Charles Beevor, Victor Horsley, or myself were students of medicine. He says in his paper published[21] in 1873 that the resources of the pathological laboratory of the West Riding Lunatic Asylum were unreservedly placed at his disposal for experimental purposes. In this paper numerous experiments are related bearing on the subject of localisation of the functions of the brain. It is of interest to note in relation to the recognition of the so-called syndrome symptoms of brain tumour that Ferrier published two papers[22] in 1879: (*a*) On Pain in the Head in Connexion with Cerebral Disease, and (*b*) on Vomiting in Connexion with Cerebral Disease.

In the volume (second edition) on the Functions of the Brain, published by Ferrier in 1886, a most interesting account (among others) is given of the experiments leading to the discovery of the visual centre and the understanding of the symptom hemianopia.[23]

"Every discovery is a verified hypothesis; and there is no discovery until verification has been gained; up to this point it was a guess, which might have been erroneous."[24]

Hence the incalculable value of the method of experiment, and of the labours of Ferrier and others who have given their time and strength to experimental investigations.

[18] Medical Times and Gazette, 1873.
[19] Beschreibung eines Augenspiegels.
[20] Archiv für Ophthalmologie, vol. vii., part 2, p. 58.
[21] West Riding Lunatic Asylum Reports, 1873.
[22] Brain, vols. i. and ii.
[23] Von Graefe, Archiv für Ophth., 1856, vol. ii., part 2, p. 286, describes hemianopia and its association with cerebral disease.
[24] G. H. Lewes: The Physical Basis of Mind.

### EARLY WORK ON CEREBRAL LOCALISATION.

The date of the first precise proof of cerebral localisation is said to be 1861, when Broca showed at the Anthropological Society of Paris the brain of a man who for 21 years had lost the faculty of speaking. There was softening of the third left frontal convolution. But in 1829 Cruveilhier[25] had a patient under his care, a woman aged 45, in whom the symptoms noted were frontal headache, weakness of the left leg, slow speech, mental enfeeblement, and involuntary micturition. He saw the case on Sept. 3rd, 1829. Death took place on Oct. 3rd. Cruveilhier had diagnosed a tumour of the right frontal lobe, and had the satisfaction of demonstrating to his class the tumour in the situation in which he had predicted that it would be found. It appears to have been an endothelioma of meninges. It had formed a cup shaped depression in the right frontal lobe.

Cruveilhier knew, as Hippocrates did, that a lesion of one side of the brain was not seldom associated with paralysis of the opposite side of the body. There are other cases in literature. The following case, for example, was published in 1831.[26] The condition for which operation was carried out was Jacksonian epilepsy.

A girl, aged 11 years, was struck on the head with a garden rake by a playfellow. The wound healed readily. Some months later while at school she became unconscious with convulsive movements, then stertorous breathing occurred, and in half an hour she was awake and well again. These attacks recurred at irregular intervals, and it was noticed that tremor of the right hand occurred at the commencement of the attack. Heyman found a scar over the left parietal bone. A trephine 1¼ inches in diameter was applied. The dura beneath was discoloured. It was incised, and a tumour yellow in colour was seen embedded in the brain. It was removed and the section showed caseous matter. Recovery was uninterrupted, the tremor of the hand ceased, no further Jacksonian attack occurred, and 24 years after the operation the patient was in perfect health.

Another case is reported in 1665 by Peter de Marchattis.[27] He writes:—

"I remember having a consultation with the famous D. Julio Sala, professor at Pavia, about a man who had been wounded in the head with a dagger. Not only was the bone injured, but the membranes and even the brain. The external wound had been treated by certain practitioners and a cicatrix had formed. After two or three months the patient was troubled with epilepsy and had a fit twice or three times a month. When asked by Prof. Sala whether he had ever had an injury to the head, he replied that he had, and pointed out the place. I immediately inserted a probe beneath the crust, and found a penetrating wound, and proceeded at once to operation, and the opening of the parts. The next day I applied the trephine; yellow pus escaped. For 20 days I applied over the brain black western balsam, with the use of which the wound granulated and in 30 days the patient was cured of his wound and of his epilepsy."

This case was obviously one of meningo-cortical abscess cured by operation.

Fritsch[28] and Hitzig in 1870 marked out certain centres in the brain by means of electrical stimulation; but Ferrier soon left this work far behind by precisely charting certain centres for movement and for special sense. I was present at the meeting of the Physiological Section of the International Congress of Medicine in 1881.[29] Ferrier's work was brought prominently into notice at this meeting. There was a Homeric contest of transcendent moment to the advancement of knowledge, and vital to the interests of mankind, over the dog shown by Goltz and the two monkeys exhibited by Ferrier. Experimental injuries had been inflicted upon the cerebral

[25] Cruveilhier: Anatomie pathologique du Corps Humain, 1830. A beautiful illustration of this tumour is in Cruveilhier's atlas. An almost similar specimen of a meningeal tumour causing a cup-shaped depression in the frontal lobe can be seen in the R.C.S. Museum.
[26] Heyman: Magasin für die gesammte Heilkunde, vol. xxxi., p. 212. If such a case had occurred in the "eighties" it would have been published as miraculous.
[27] Obs. Medico-Chirurgicarum, Obs. vii., p. 11.
[28] Du Bois Reymond's Archiv, 1870.
[29] Pp 230–237, Transactions of the Congress, vol. i.: Goltz spoke of the "utter folly of the view that special parts of the brain are peculiarly associated with certain functional departments."

cortex of each of these animals. The condition of the dog was supposed to prove that localisation of function in the cortex cerebri did not exist. One of the monkeys had characteristic cerebral hemiplegia; as it came into the room, Charcot remarked, "It is a patient." The other monkey showed no signs of hearing when a percussion cap was snapped in its immediate vicinity; indeed, it was the only mammal in the room that did not jump as the detonation occurred. Three years before this demonstration I listened to a lecture in which we were told that the brain functioned as a whole, whatever that may mean; but now all doubt as to the truth of the great doctrine of cerebral localisation was laid to rest, and the ground was prepared for the immense progress of the coming years.

### VICTOR HORSLEY AND WILLIAM MACEWEN.

Following on Ferrier's demonstration of the truth of cerebral localisation, a tremendous activity in work designed to elucidate the anatomy and physiology of the nervous system was carried out, the like of which has not been seen before or since. (It should be remembered that at this time the science of bacteriology was only just born, and that chemical pathology was an unknown science. In 1884 I joined the first class in bacteriology formed in the ancient University of Leipzig. The bacillus of tetanus was discovered in 1884, but a pure culture was not obtained till 1889. A toxin was demonstrated in 1886.) From 1884 to 1891 Horsley produced eight papers of transcendent importance in association with Schafer, Beevor, Semon, W. Spencer, and Gotch. Besides the experimental stimulation of the cortex and internal capsule, the degeneration of fibres caused by ablation experiments and by disease were a fruitful source of knowledge, for new methods of staining nerve cells and nerve fibres were discovered, and thus both the normal and the pathological anatomy of the brain were clearly demonstrated. A good example of the value of modern microscopic methods was the paper by J. M. Clarke and Horsley on the Intrinsic Fibres of the Cerebellum, its Nuclei and Efferent Tracts.[30] The Marchi method of staining was employed.

Surgeons and physicians who practise neurology are divided into two classes: (*a*) those who have themselves become acquainted with the physiology of the brain by the method of experiment either by performing experiments themselves or by watching, as Hughlings Jackson did, experiments being performed by others; and (*b*) those who depend on the records of the experimental work of others, they themselves having no personal knowledge of such experiments. Horsley is the supreme representative of the former class, having with his associates in a few years gathered a vast field of knowledge of the physiology of the brain. At the annual meeting of the British Medical Association[31] at Brighton in 1886 Horsley read a paper on brain surgery, especially noteworthy because the diagnosis of each case reported was discussed with reference to his experimental work already done on the monkey's brain. In 1887 Horsley[32] published a paper giving details of 10 cases of cerebral surgery. He again pointed out that such work could not be carried out without a knowledge of the physiology of the brain, which could only be obtained by experiment.

In 1888 Macewen[33] gave a splendid address on the surgery of the brain and spinal cord at the annual meeting of the B.M.A. in Glasgow. He stated that he had operated on 21 cases of cerebral disease with 18 recoveries. Of the three cases that died all were in extremis when operated on. The first case, one of abscess in Broca's convolution, was diagnosed in 1876, but no operation was allowed. The second case occurred in 1879: a subdural collection of blood was evacuated under a fissured fracture. Macewen writes:

> "The full force and significance of the experiments of Fritsch and Hitzig in 1870 were not recognised in this country at any rate until Ferrier's observations on the brains of animals undertaken to put to an experimental proof the views entertained by Hughlings Jackson were published in 1873. Another link in the unity of the plan of creation was manifest, as even in the higher and more complex brain of man, parts existed whose functions found homologous expression in that of the lower animals."

In 1888 Keen[34] published three cases of cerebral surgery. The first case occurred in 1887; a large meningeal tumour was removed from the fronto-parietal region; in the second case a scar in the cerebral cortex was removed; and in the third the part of the cerebral cortex in which are represented the movements of the left hand was excised.

Ernst von Bergmann published in 1889 "Die Chirurgische Behandlung von Hirnkrankheiten," in which cases of operation for brain abscess, for brain tumour, for traumatic epilepsy, and for other cerebral conditions are described. In 1899 a much enlarged edition of this work was published.

In 1893 Macewen published his pioneer volume on "Pyogenic Infective Diseases of the Brain and Spinal Cord," and Mott,[35] in 1904, contributed a valuable paper on the Nature of the Cerebro-spinal Fluid.

Time will not allow me to give even the scantiest reference to the great volume of research work on the brain which, since the International Congress of 1881, has continued in an ever-widening and fruitful stream. Ferrier, in the Marshall Hall oration (1883), said

> "that up to that time cerebral localisation had been absorbed like latent heat by medical science itself as distinct from medical and surgical practice, but that the unfailing safety of experiments upon animals made it clear that similar results would soon be achieved on man himself."[36]

The forecast of Ferrier soon became true. Godlee[37] removed in London under modern conditions a brain tumour on Nov. 25th, 1884, but by the end of 1886 Horsley had done 10 operations on the brain at Queen-square. In 1879 Macewen removed a tumour of the meninges which pressed on the frontal lobe, and in 1883 he operated on a syphilitic granuloma of the paracentral lobe; but there was no general belief in the value of brain surgery, and no general knowledge of the great new field of cerebral surgery till Horsley's experimental and operative work became known. Horsley was particularly qualified for surgical work on the brain of man by his long and intimate acquaintance with operations on the brain of the monkey. Any success which I myself have attained in the same field I attribute to having, with my friend the late Dr. W. B. Hadden, performed a number of stimulation and ablation experiments on the brain of the monkey. These clearly brought home to me that cerebral surgery, as at that time practised, was not founded on knowledge, and that the brain should be treated by the surgeon like any other living tissue.

During every decade of the last 40 years the surgery of the brain has shared fully in the immense progress which has been made in all departments of surgical practice. Operations on the brain, which were few and far between at first, became of common and weekly occurrence. I remember well the time that when the brains were out the man would die, and there would be an end; and though this dire calamity still dogs our footsteps the times have changed, for it may be said of Victor Horsley:

> "....Strangely-visited people,
> All swoln and ulcerous, pitiful [in the brains],
> The mere despair of surgery, he cures."[38]

### THE STEADY PROGRESS OF SURGERY AND NEUROLOGY.

The late Sir Theodore Martin, writing some time before the war, and expressing his views on the signs of the times, asked: Where are the giants? Where are the Palmerstons, the Disraelis, the Gladstones in politics? Where are the giants in literature? Where in any walk of life are Alpine altitudes to be found? It is quite easy to answer this question as far as surgery and neurology are concerned. The

[30] Brain, 1905. [31] Brit. Med. Jour., 1886, ii, p. 670.
[32] Ibid., 1887, i., p. 863. [33] Ibid., 1888, ii., p. 302.
[34] American Journal of the Medical Sciences, 1888.
[35] Ibid., 1904, ii., p. 1551.
[36] R. Med. Chir. Soc. Trans., 1884. [37] Ibid., 1885.
[38] Macbeth, Act. IV., Scene III.

pageant of neurology and surgery through which I have lived has been the most glorious of all time. I have heard Virchow and Helmholtz lecture, I have seen Pasteur and Lister at work, and have possessed the inestimable privilege of the friendship of Sir James Paget. And where is it possible to discover another group of names famous in neurology such as our country can produce in Jackson, Schafer, Ferrier, Gowers, Sherrington, and Horsley? Schafer, Ferrier, Sherrington, and Head are still with us. Sherrington and Head in this country, Harvey Cushing in America, and a splendid band of other workers continue the life of the body corporate of neurology. The body corporate has a continuous life, but a life of ever-changing form, for the individual members pass away. From year to year this organic body grows in strength and knowledge. There is no halt in the beneficent endeavour to relieve suffering and cure disease. The knowledge gained by the toil of one generation soon becomes the commonplace of the next. Meanwhile the increase in knowledge of the physiology, pathology, and surgery of the brain made it possible to diagnose and operate successfully, not only on cases of brain tumour, but on many other intracranial affections.

It is interesting to note how long an interval elapsed between the pathological description and illustration of disease and the adoption of systematic operative measures for its cure. Hooper[39] published beautiful illustrations of encysted abscess of, and of spreading suppuration in, the brain in 1826. Cruveilhier[40] published an illustration of temporo-sphenoidal abscess in 1835. Richard Bright[41] published an illustration of temporo-sphenoidal abscess in 1831 and of the temporal bone disease from which it arose. Auvert[42] in 1851 published a picture of cerebellar abscess, the first illustration of this disease in literature. The first full and critical account of brain abscess is that published by Lebert[43] in 1856. It is based on the records of 80 cases. Lebert published in his atlas of pathology the first illustration of a cerebello-pontine tumour. *Lateral sinus pyæmia* was described by Abercrombie,[44] Arnott,[45] Richard Bright,[46] and Sédillot[47]; it was described and figured by Hooper[48] and Lebert.[49]

In 1881 Macewen[50] operated on a case of temporo-sphenoidal abscess, and in 1887 Schwartz[51] successfully operated on a cerebellar abscess. We must not, however, forget that Morand[52] operated in 1752 with success on a monk aged 51 years for temporo-sphenoidal abscess. Of those who have contributed to the slow but certain progress of surgery some are known but many are unknown to fame; we ought never to forget what is due to those who have gone before.

The formation of abscess of the brain under compound fracture of the vault of the skull was known and treated long before the treatment of brain abscess became a common surgical procedure. Such an abscess may occur long after the original injury; I have known one case which was fatal 20 years after the original injury to the cranium. Dupuytren,[53] in one of his lectures, says:—

"In certain cases of deeply seated fluid collections we must incise the dura mater, the arachnoid and the brain itself, and by this bold proceeding patients have been saved."

And further he continues:—

"Relying also on the success of J. L. Petit, Boyer concurs in the advice of Quesnay, and does not fear to plunge the bistoury quite deeply into the very substance of the brain in order to evacuate traumatic effusions, and it has fallen to my lot to do so several times with success."

Dupuytren, in his account of such a case, says simply:—

"I incised the dura mater, nothing came out; I thrust a bistoury cautiously (*i.e.* so as to avoid the vessels of the cortex) into the brain and there welled up immediately a flood of pus. That very night all the symptoms disappeared and the patient recovered."

In 1884 Zaufal[54] recommended that the internal jugular vein should be tied in cases of lateral sinus pyæmia. Arbuthnot Lane[55] first performed the operation in 1888. In 1903 a large hæmatocele was removed successfully from the subdural space of a man.[56] In the same year Harvey Cushing operated for the removal of an apoplectic clot from the brain,[57] and in 1905 he published cases of successful operation on the intracranial hæmorrhages of the new-born.[58] The publication of Quincke's[59] papers on lumbar puncture in 1891 and in meningitis serosa in 1893 is a landmark in the history of the diagnosis and treatment of the various forms of meningitis, and in recent years operations on cases of meningitis have led to the saving of many lives.[60]

These few examples must suffice. During every decade since 1881 new surgical problems have been successfully solved, and the surgeon's art in cases of intracranial disease continues to triumph along many lines of advance. I sometimes think, however, that with all the scientific knowledge we now possess as an aid to diagnosis, we lack, perhaps, in some degree the diagnostic insight or instinct—the supreme gift—possessed by some of the great surgeons of the past.

## CONCLUSION.

What lesson is to be garnered from the story of the surgery of the brain? In the gradual evolution of truth it would seem that at the end of each stage of the world's history a great man appears, who focuses in his speech and writing the best thoughts of the preceding centuries, or who is a messenger of a new knowledge. Carlyle, in his lecture on the hero, as poet, takes as examples Dante and Shakespeare. He says:

"And so in this Dante ten silent centuries in a very strange way found a voice. . . . Dante has given the Faith or Soul; Shakespeare in a not less noble way, has given us the Practice or body. This latter also we were to have; a man was sent for it, the man Shakespeare. Just when that chivalry way of life had *reached its last finish* and was on the point of breaking down into slow or swift dissolution, as we now see it everywhere, this other Sovereign Poet, with his seeing eye, and his perennial singing voice, was sent to take note of it, to give long enduring record of it. Two fit men—Dante, deep, fierce, as the central fire of the world; Shakespeare, wide, placid, farseeing, as the Sun, *the upper light of the world*."

So it has been in the story of the history of surgery. Some names, like those of Hippocrates, John Hunter, Joseph Lister, mark epochs in the advancement of knowledge. Hippocrates represents the highest development of clinical research. Morgagni, anatomist and pathologist, bridges the gap between the famous anatomists of the middle ages and the great pathologists of the first half of the nineteenth century. Auvert, Cruveilhier, Lebert, Bright, Hooper, and Carswell came just when the knowledge of morbid anatomy seemed to have *reached its last finish*.

John Hunter awoke in the minds of his pupils and later followers a desire to explore the old ground by the new experimental method, and to unearth truths

[39] The Morbid Anatomy of the Human Brain, 1826.
[40] Anatomie pathologique du Corps Humain, 1835.
[41] Reports of Medical Cases, vol. ii.
[42] Selecta Praxis Medico-Chirurgica, 1851.
[43] Virchow's Archives, vol. x.
[44] Pathological and Practical Observations on Diseases of the Brain, 1828.
[45] Med. Chir. Trans., vol. xv., 1828.
[46] Ibid., 1829.
[47] De l'Infection Purulente, 1849.
[48] Ibid., 1826.
[49] Traité d'Anatomie Pathologique, 1859.
[50] Pyogenic Infective Diseases of the Brain, 1893, Case 30, p. 177.
[51] Archiv für Ohrenheilkunde, vol. xxix., p. 163, 1890.
[52] Opuscules de Chirurgie, Paris, 1768, p. 161. See for this case and others, Essays on the Surgery of the Temporal Bone, 1919, vol. ii., p. 341.
[53] Leçons Orales, second edition, vol. vi., 1839.
[54] Prag. Med. Woch., 1884.
[55] Clin. Soc. Trans., 1889, p. 260.
[56] Some Points in the Surgery of the Brain, 2nd ed., p. 22.
[57] American Journal of the Med. Sciences, 1903, pp. 1032–36.
[58] Ibid., October, 1905.
[59] Verhand. des Congress für innere Medizin, 1901, p. 322, and Volkmann's Klinische Vorträge, New Folge, No. 67.
[60] See Irvine Haynes's Transactions of American Laryng., Rhinolog., and Otolog. Soc., 1912. Also Kopetzky's paper in the same volume on the pathology of meningitis. Also Ewing Day's paper in the same Transactions for 1913. See also papers by Dr. Reynolds on Meningitic Epilepsy, Californian State Journal of Medicine, August, 1921. The Radical Cure of Hydrocephalus, International Clinics, vol. iii., Series 31; and Infective External Hydrocephalus, Brit. Med. Jour., July, 1921; and Diagnosis and Treatment of Meningitis, by C. A. Ballance, Brit. Med. Jour., Sept. 10th, 1921.

long concealed. "There was a spirit of adventure, like that which animated the Elizabethan explorers, the ambition of the healthy human intellect to extend its range of vision and of knowledge. To Hunter belongs the credit of rediscovery of this new world. He it was who lighted the torch. His pupils, like Astley Cooper, were those who first carried it forward in the race, kept it alight, and then passed it on, not only undiminished, but burning with a brighter flame."[61]

Galen and Harvey were Hunter's great forerunners in the use of the experimental method; but, unlike Hunter, neither of them left behind them, as far as we know, a great band of pupils and followers. The names of Larrey (1766–1842), Guthrie (1785–1856), Cheselden (1688–1752), Dupuytren (1778–1835), Syme (1799–1870), and Fergusson (1807–1877) are fit examples of the time when the art of surgery was based on anatomy and pathological anatomy alone, and when many thought that art must needs have reached its final limits. But there is *no last finish* in the path of surgical progress. In the fullness of time Lister, *the upper light of surgery*, appears. He was the herald of the dawn of scientific surgery, of a wider insight into surgical thought and practice, and his life and work gave promise of more triumphs to come.

I have tried to trace the history of the surgery of the brain from the Neolithic age, and to develop the theme that modern neurological surgery rests on the sure foundation of experimental physiology. A real knowledge of anatomy and pathology, the discovery of the microbic origin of disease, and the rise of the experimental method of research, were essential preliminaries to further progress. The discovery of anæsthesia by Morton and Simpson, and the immortal labours of Pasteur and of Lister, made straight the way for their followers. In the fullness of time, Victor Horsley, a man specially trained and of great industry and ability, created the new department of neurological surgery.

None of us have seen Hippocrates in the flesh, but his spirit rules our lives, energises our teaching, and stimulates our clinical investigations. "The wonderful figure, character, and spirit of Hippocrates," writes Dr. Singer, "are more real and living to-day than they have been since the collapse of the Greek scientific intellect in the third and fourth centuries of the Christian era."[62]

None of us have seen John Hunter in the flesh. His life was occupied in testing, by means of experiment, every problem that presented itself. Hunter's influence upon the surgical profession was universal and immense. We feel his spirit is still present in our life and work as we wander through the rooms of the Hunterian Museum. From the time of Hunter to that of Lister many surgeons of this College were endeavouring to discover the secrets of surgery and surgical pathology by way of experiment. Sir Thomas Browne[63] says in a beautiful passage:

> "The wisdom of God receives small honour from those vulgar heads that rudely stare about, and with a gross rusticity admire His works. Those highly magnify Him, whose judicious enquiry into His acts, and deliberate research into His creatures return the duty of a devout and learned admiration."

I have an uneasy feeling, shared by some of my friends, that during the last two or three decades *the cult of operating* among some of the younger Fellows of this College has displaced in part the sacred duty, laid upon each one of us, of adding one more stone to the building of surgical knowledge. Every man is a debtor to his profession. A vast field of our art and science still remains unmapped and unexplored. I trust that succeeding generations of surgeons, who look upon this College as their alma mater, will devote time to research work. Research adds zest and satisfaction to life, and gives the promise of that thrill of delight which accompanies the first perception, the slow unfolding of some new truth or principle. Thus may we surgeons rightly forge new weapons against disease and death.

[61] Sir Charters Symonds: Hunterian Oration.
[62] Dr. Charles Singer: Ibid. [63] Religio Medici, Section 13.

## A CASE OF
# ACUTE ANAEROBIC (*B. WELCHII*) INFECTION OF UTERINE FIBROIDS,
### WITH A REFERENCE TO THE ÆTIOLOGY OF NECROBIOSIS.

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THIS case of acute emphysematous gangrene of a uterine fibroid terminating in a rapidly fatal anaerobic septicæmia is recorded both on account of its extreme rarity and also because its leading features suggest a resemblance to the condition known as acute necrobiosis or red degeneration of fibroids of the uterus.

*History.*—The patient, a single woman aged 52, who appeared to be in good health generally, was admitted into the cancer wing of the Middlesex Hospital on July 6th, 1921, with a recurrent spindle-celled sarcoma of the lower jaw, presenting as a prominent swelling in the cheek on the right side, with an intra-oral extension covered with a greyish slough. She also had a hypogastric tumour arising out of the pelvis, and thought probably to be a uterine fibroid. According to her statement this latter tumour had been present for quite 20 years; she had refused operation for it.

On the 8th Mr. T. H. Kellock inserted six 50 mgm. tubes of radium into the tumour of the jaw from the outer aspect of the cheek, the tubes being kept in for 16 hours. On the following evening the patient's temperature rose to 103° F., her pulse being 92; temperature remained between 101° and 103°, and on the morning of the 11th she became acutely jaundiced, with a temperature of 102° and pulse-rate of 136. She seemed fairly well in herself; her face caused her less pain than it had done for a long while, but she complained of some abdominal distension and discomfort. On examination the condition of the mandibular tumour was found to be quite satisfactory; it was not more prominent or tender than before, and the punctures by which the radium had been introduced were clean. The abdomen was somewhat distended, being tympanitic and tender in its lower half. Tenderness was not marked below the costal margin; liver and gall-bladder were not felt; there was no history of previous attacks of intra-abdominal pain suggesting gall-stones, and the explanation of the jaundice was obscure. The stools were dark, the urine was very dark red in colour, but did not give a greenish tint on addition of tincture of iodine, which fact, together with the patient's high temperature, was in favour of the jaundice being of an infective nature. The patient became rapidly worse; at 2 P.M. on the same day, the 11th, she was delirious and almost pulseless, the jaundice being deeper and the abdomen more distended. She died at 5 P.M.

*Post-mortem Examination.*—At the autopsy next day, carried out by one of us (A. N. K.), the body was seen to be that of a well-nourished woman, deeply jaundiced, and with considerable distension of the abdomen. The skin over the upper part of the chest-wall and neck was mottled, and subcutaneous emphysema was present bilaterally in the neck and below the clavicles. An old healed incision was seen in the right submaxillary region through which the horizontal ramus of the mandible had been excised (operation elsewhere in February, 1921). There was a prominent swelling over the right side of the lower jaw in relation to the angle and ascending ramus, over which the skin presented six recent punctured wounds through which the radium tubes had been inserted. The swelling was localised to the mandible, and there was no evidence of any deep inflammatory reaction, nor was there any subcutaneous emphysema within four inches of the tumour.

On opening the abdomen a large rounded sessile tumour was seen springing from the fundus of the uterus and extending up into the epigastrium. There was no axial rotation. Adhesions had been formed between the tumour and the omentum, and also to the ascending colon and the posterior abdominal wall; these adhesions could only be separated with difficulty. The tumour was tense, and its percussion note was hyper-resonant. On incision of the tumour a quantity of gas and blood-stained fluid escaped; its interior presented a ragged, necrotic surface, brownish-pink in colour, and having a stale, offensive smell. The uterus in general was the seat of multiple fibroids varying in size from a marble to a tangerine orange, some of which were undergoing calcification. Ten ounces of blood-stained fluid were present in the peritoneal cavity. Numerous small blebs of gas were seen beneath the peritoneum in the region of the gall-bladder, duodenum, and right kidney pouch. The gall-bladder contained a small quantity of gas, a normal amount of bile, and a few minute yellow gall-stones. The common bile-duct was patent. The liver weighed 50 oz. It was very soft, and on section was found to present a greyish-brown surface, mottled yellow, and on close inspection minute bubbles of gas were seen. The spleen was enlarged (6 oz.), diffluent, and red-brown in colour. The kidneys (right, 6 oz.; left, 6½ oz.) were pale on section, showing here and there narrow congested areas in the medullæ. Punctiform subcapsular hæmorrhages were present. The heart weighed 11½ oz., and the pericardial sac contained 4 oz. of blood-stained fluid. The myocardium was soft on pressure, and the intima of the base of the aorta and pulmonary artery was blood-stained. The lungs were congested.

*Bacteriological Examination.*—Specimens were taken from the tumour fluid and the heart blood for investigation. Direct films from both situations were seen to contain numerous thick Gram-positive bacilli suggestive of *B. welchii*. No other organism was found. Cultures from both specimens were put up on broth-agar, in litmus-milk, and in alkaline meat. Both tubes of litmus-milk showed the typical "stormy clot" appearance of a *B. welchii* culture, and the meat cultures showed reddening of the meat. The broth-agar tubes showed no growth. The organism was therefore concluded to be *B. welchii*.

*Description of the Specimen* (see figure).—After fixing in Kaiserling solution a complete hemisection of the uterus was made in the sagittal plane, with the result shown in the accompanying illustration. The specimen measures 26 cm. in total length; the large subperitoneal fibroid (A) measures 15 by 14 cm. in its vertical and antero-posterior diameters respectively. It will be seen that the upper and anterior part of the big fibroid is involved in the necrotic process, the postero-inferior part remaining solid, but discoloured, and with an evident loss of the characteristic whorled appearance. This portion of the tumour presents a large number of small empty spaces; others are also found lower down, in the uterine wall, and in relation to the submucous fibroid seen behind the upper part of the uterine cavity. These spaces did not contain blood or fluid, and we consider that they are evidence of intense gas production resulting from anaerobic activity. Their relation to the endometrium is most suggestive of the origin of the infection. The submucous fibroid (C) referred to above is at its centre distinctly pink in colour, whereas the remainder of the interstitial fibroids are of the usual greyish-white colour.

*Histological Examination.*—Sections were examined of tissue from (1) the posterior part of the large fibroid; (2) the centre of the submucous fibroid.

1. The tissue showed a complete loss of nuclear staining. The bundles of fibrous tissue stained very faintly, and were extensively degenerated. Sections stained with Sudan III. and counter-stained with hæmatoxylin showed a large number of golden-yellow globules of varying sizes, both intra- and extra-cellular.

2. The tissue for the most part stained normally; it showed some separation of the individual strands of fibrous tissue. A small area was seen in which nuclear staining was absent and degeneration advanced. A number of small brown rhombic crystals, presumably of blood derivation, were present. Stained with Gram, a few Gram-positive bacilli were seen; with Sudan III. very slight fatty change was demonstrated.

Sagittal section of uterus, showing at A the necrotic inner wall of the gas-distended fibroid; B marks the small empty spaces referred to in the text, and C is the submucous red fibroid.

*Remarks.*

Uterine fibroids may become infected by one of three routes: (1) From the endometrium or from an ascending tubal infection; (2) from the bowel; (3) through the blood-stream. In the case here recorded infection via the blood-stream is unlikely, there being a complete absence of any inflammatory reaction in the mandibular tumour, and examination failing to find any other likely source of a hæmic infection. At first sight infection of the fibroid would appear most probable from the bowel; in virtue of its subperitoneal situation infection would least likely occur from the cavity of the uterus, and the presence of dense adhesions to the ascending colon and posterior abdominal wall in general also favour the probability. On the other hand, due importance must be attached to the multiple small spaces

scattered throughout the uterine wall in relation to the smaller submucous fibroid: these suggest diffuse anaerobic infection of the whole uterus, either extending down from the large fibroid—i.e., a bowel infection—or, more probably, spreading up to it from the endometrium.

*Clinical Features.*—From a clinical point of view striking features of the case were:—

1. The patient's mental alertness and sense of well-being, which lasted until about six hours before her death, and the rapidity of the terminal collapse and cardiac failure—the characteristic syndrome of gas gangrene.

2. The extreme depth of the jaundice; no gross bile-duct obstruction was found post mortem to account for this, and it was considered to be a purely hæmolytic jaundice, which in its characters thus agreed with the statement of Joannovics[1] that icterus due to hæmolysis may reach a much higher degree than icterus from bile-duct occlusion. According to Stadelmann[2] extensive hæmolysis often results in the production of bile so thick that it may practically block the bile-ducts, and Eppinger[3] supports him by finding in these cases bile thrombi plugging the bile-ducts. Another factor may be considered—namely, formation in the liver of the diffuse gaseous infiltration already described; this, it is reasonable to suppose, may also have constituted an added mechanical obstruction to the flow of the thickened bile.

3. The very marked hyper-resonance of the abdomen, particularly in the umbilical and hypogastric regions. This was proved post mortem to be due to gaseous distension of the large fibroid, which lay immediately beneath the anterior abdominal wall, with no bowel intervening. It was thought at first that the condition might be one of torsion of a uterine or ovarian tumour, but in the latter, although many of the symptoms and signs are similar, the tumour is enlarged, but remains dull on percussion, unless distended gut chances to be present in front of it. In the present case the symptom-complex of abdominal swelling, pain, extreme tenderness, and hyper-resonance, with jaundice and fever, formed a very striking picture, but the condition is too rare for the assertion that the change from dullness to hyper-resonance is indicative of anaerobic infection, nor must such infection necessarily cause gross gas collection sufficiently great to enable its presence to be demonstrated clinically. The subcutaneous emphysema in the neck and infra-clavicular regions was not noticed during life, but the body had been removed to the freezing chamber shortly after death, which renders it unlikely that this was a post-mortem phenomenon.

### *Points of Resemblance with Necrobiosis.*

We wish now to draw attention to the points of resemblance between this case and the so-called necrobiosis or red degeneration of uterine fibroids. Necrobiosis is an acute change, commonly taking place in pregnancy or the puerperium, but also found later, often about the time of the menopause. The patient is taken acutely ill with abdominal pain, the temperature and pulse-rate rise, and there is often evidence of toxæmia of varying severity. On examination a tense and tender pelvic tumour is found which may be mistaken for a twisted ovarian tumour, salpingitis, extra-uterine gestation, or a suppurating fibroid. On removal and section of the fibroid it is found to be softer than normal, and sometimes to contain cysts of varying sizes filled with a dark fluid. The colour varies from a pink to a deep mahogany brown, and is usually deeper at its centre than at the periphery; the fluid has a stale, fishy odour.

It is now generally agreed that the red colour is due to hæmolysis, and the two commonly accepted theories in explanation of this hæmolysis are (1) that there is a primary thrombosis of the vessels supplying the fibroid, resulting in degeneration and autolysis, and (2) that the process is an aseptic necrosis, the hæmolysis being due to the action of hæmolytic lipoids (Leith Murray).[4] The thrombosis theory has met with opposition because many necrobiotic fibroids have been examined in which no thrombosis could be demonstrated, and Leith Murray's theory that the process is an aseptic necrosis seems difficult to reconcile with the frequent acuteness of the change and its general ill-effects on the patient.

The question of infection has been considered by authorities on many occasions. For instance, Sir John Bland-Sutton[5] has described a case in which a pure culture of *Staphylococcus pyogenes aureus* was obtained from a necrobiotic fibroid, but his final opinion[6] is that "such infection is an epi-phenomenon—a sequence, not a cause." Again, Lorrain Smith and Shaw[7] mention two cases of red degeneration in which there were symptoms of toxæmia; bacteria (staphylococci and diplococci) were found in sections of the tumours. They regard this infection as secondary to thrombosis. Hartman and Mignot[8] describe a case in which anaerobic bacilli were found in a suppurating uterine fibroid. Lea and Sidebotham,[9] in an investigation of 58 normal puerperal cases, found hæmolytic staphylococci in 50 per cent. of cases; streptococci, many of which were hæmolytic, in 20 per cent.; and anaerobes in 19 per cent. Recently one of us (A. N. K.) has demonstrated *B. welchii* in the lochia from a case of sub-involution of the uterus. Moreover, *B. welchii* septicæmia has from time to time been recorded as a puerperal infection.

### *Facts Established in the Case Described.*

Hæmolytic bacteria are evidently commonly present in the uterine cavity without causing symptoms of infection. Anaerobes have been found in at least one case of infection of a uterine fibroid. In view of the relationship between pregnancy and red degeneration we suggest that the question of anaerobic infection of fibroids merits further investigation. Many of the hæmolytic cocci are facultative anaerobes in addition to true anaerobes such as *B. welchii*, and from our study of the literature we have gained the impression that anaerobic cultures of degenerating fibroids have been rather neglected. In the present case the following facts are established:—

1. The fibroids have been infected by *B. welchii*, derived most probably from the cavity of the uterus.

2. In the large subperitoneal fibroid the local changes have progressed to necrosis and liquefaction. The colour and histological changes (degeneration and fatty change) are similar to those recognised as characteristic of necrobiosis.

3. The submucous fibroid, in which the change is less pronounced, shows a central red colouration, with early hyaline and fatty degeneration, and in sections Gram-positive bacilli resembling *B. welchii* are seen together with brown rhombic crystals, probably hæmatoidin.

We postulate, therefore, that necrobiosis of uterine fibroids is due to an anaerobic infection derived from the cavity of the uterus; the infection remains localised to the fibroid, and results in (*a*) local changes, (*b*) general effects.

(*a*) Hæmolysins produced in the fibroid will account for the hæmolysis upon which all observers are agreed. The initial infection will cause a vascular engorgement which by distension of the capsule will account for the pain of which these cases complain. Later, infective periphlebitis may involve the capsular vessels, and the condition may proceed finally to an established phlebitis and thrombosis. The histological changes of hyaline and fatty degeneration, and loss of nuclear staining, are consistent with the theory of anaerobic infection.

(*b*) General effects, such as malaise, fever, and secondary anæmia, are produced partly by the absorption of these necrotic products, and partly by the hæmolysis which these bacterial toxins can also effect in the general circulation.

*Conclusion.*

The present case has, then, much in common, clinically and pathologically, with more typical cases of acute red degeneration; it differs in that the infection proceeded to a well-established septicæmia, but as in puerperal sapræmia infection may remain localised to the uterus, so we suggest it may remain localised in necrobiosis with hæmolysis. We think that the theory of anaerobic infection as the primary cause of this condition is more satisfactory than the current theories of primary thrombosis or aseptic necrosis, and the immunity from red degeneration which ovarian fibroids show, as has been pointed out by Sir John Bland-Sutton,[5] is well explained by this theory in virtue of their non-contact with the uterine cavity. A final point is the fact that although all varieties of uterine fibroids may become necrobiotic, interstitial and submucous tumours are most liable to become affected.

For permission to describe this case we wish to record our thanks to Mr. T. H. Kellock, surgeon to the Middlesex Hospital, and to Prof. James McIntosh, of the Bland-Sutton Institute of Pathology, Middlesex Hospital. We are indebted for the illustration to Mr. S. A. Sewell.

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# CHRONIC DEEP INFECTION OF THE JAWS.

BY STANLEY COLYER, M.D., M.R.C.P. LOND.,

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IT is well known to many clinical observers that the results obtained in general diseases by the radical treatment of oral sepsis, their assumed cause, are by no means uniform. Anyone who has followed the fortunes of this ætiological factor knows of brilliant results, complete failures, partial failures, apparent cures with subsequent relapses, and of advanced cases of pyorrhœa alveolaris with little or no demonstrable general symptoms. Like many others who believe in the importance of the septic mouth, I was at a loss to account for these obvious failures, and not until I took up the study of radiology did I obtain a workable explanation.

*Type of Infection only Diagnosable from Radiograms.*

The examination of several hundred dental radiograms made it quite clear to me that in many cases infection is by no means limited to the teeth and their immediate neighbourhood, but may pass into the very body of the jaws and there form breeding-grounds for germs which in time produce changes in the bone sufficiently coarse to alter the radiographic shadows peculiar to normal cancellous tissue. It was plain, also, that, even in edentulous parts of jaws from which septic teeth had been removed, infection of the bone might continue, so that it did not follow, when the offending teeth had been extracted, that nature was always able to deal with the residual infection. Further, in certain patients radiographed for their own satisfaction—patients declared clinically fit by their dentists—I frequently found unexpected infection, which showed that such conditions of the jaw may be undiagnosable save from a radiogram. There was still another class, those with advanced marginal osteitis, who showed no obvious general conditions; these usually presented markedly sclerotic edges to their receding alveolar edge, and either but little bone infection or infection that was practically cured.

It will thus be seen that the results of these findings was to give the workable explanation I spoke of above, and I may add that it seemed to support the view of those who believe that the damage done by oral sepsis is chiefly via the lymphatic rather than via the alimentary system. It gave me also an explanation of that somewhat rare condition of the jaws characterised by persistent shrinkage.

I do not wish to indicate that infection of the jaws has not been recognised, because it is clear that if the periodontal membrane is infected the bone immediately around must be infected; it is a pathological necessity. But it has been thought by most workers that this infection was limited to the bone immediately around the roots, and it does not seem to have been recognised, or if recognised its importance has been overlooked, that infection may pass deeply and there settle. Moreover, I do not wish in any way to minimise the importance of the more superficial infections, such as marginal osteitis, infected and thickened periodontal membranes, and peri-apical inflammatory changes—these have their importance and possibly greater importance than the deep infection, but I want in this paper, as far as possible, to confine my attention to the latter only, and after describing shortly its radiographic appearances to discuss its possible relationship to the failures attributed to oral sepsis.

*Necessity of Minute Examination.*

To discover infection of the jaw one must study closely the finer changes in the cancellous tissue. To do so it is often necessary to use a magnifying glass, and it is *always* necessary to view radiograms in a strong transmitted light. To hold up negatives at arm's length against the daylight and expect to see fine changes is to hope for the impossible. Careful examination shows that these changes vary considerably in appearance, but all are essentially dependent upon the two inflammatory changes of bone known as rarefaction and sclerosis—the varying appearances being due, it would seem, to the structure of the cancellous tissue, to the nature of the infection, and to the resistance and age of the patient.

Let us suppose that the radiograms have been suitably mounted close together and are now in position on a view-box. On glancing at them the radiologist gains a general impression—in other words, he knows at once without looking far for details that the patient is suffering either from localised areas of infection or that he has a more general infection of one or both jaws—has, in fact, a chronic pan-alveolitis of the jaws. It is just this general impression of infection which cannot be exactly translated into words; it depends upon accumulated experiences and upon the examination of numerous radiograms produced by a known technique. It is the familiarity of a radiologist with his own technique which makes him careful in expressing an opinion upon the work of others. With a full consciousness of the difficulties in mind we find that the general impression resolves itself into two smaller impressions: (1) a suggestion of woolliness or fleeciness about the negatives, and (2) the presence of blotches or patches of either increased or decreased translucency. If we now look more closely into the radiograms we shall note that the fleeciness appears to be due to a thickening of the trabeculæ of the cancellous tissue and to a decreased translucency of the cancellous spaces, as though lime salts were diffused throughout the medullary substance. The blotches are due to (1) largish or smallish areas, or even streaks, of increased translucency which may be translated as areas of rarefaction, regular or irregular in outline; the bony tissue immediately around them may or may not be sclerosed, and the streaks referred to are seen in more severe cases of infection, generally in young people, where reparative changes are insignificant, and their direction is that of the lymphatic flow; (2) largish or smallish areas of sclerosis, brought about by irritation of toxins from some local source. The small areas may be nothing

but dots which may represent the thickened junction of cancellous trabeculæ or a healed "small darkish spot." In severe cases the entire picture of the structure of cancellous tissue is altered; in less severe cases the structure is altered near obviously infected spots, such as a septic root.

If the negatives be now looked at still more closely, with the aid of a magnifying glass, one of the most important features of chronic infection may be discovered—namely, the presence of small, roundish, blackish spots surrounded by a layer of sclerosed bone. I can give these spots no name. From analogy with a similar condition often found at the apex of infected inter-radicular bony septa I assume them to be small masses of inflammatory tissue dependent upon a low grade infection. To be of diagnostic value they must be present in fair numbers, as a very similar appearance is shown by the minute foramina of nutrient vessels from the periosteum. These spots may occur singly or in clusters; the latter appearance is very characteristic. The proofs of their infective nature is indirect, and are these: (1) They may often be seen in the bone immediately around the apices of infected teeth. (2) They may sometimes be seen in the substances of interdental bony septa in a state of chronic inflammation from a marginal osteitis. (3) In an otherwise normal-looking septum they may sometimes be seen right up against an exostosis affecting what appears to be a healthy tooth—a most significant fact.

*Clinical Importance of Bone Infections.*

Let us now turn from a description of these bone infections and endeavour to assess their clinical importance. It is beyond argument that they, together with the more superficial oral infections, do exist in relation to certain other diseases which clear up on their removal. But there remains a large residuum of cases in which such treatment is of little or no avail. It is clear from what I have written that it is clinically impossible to gauge the degree of jaw infection; until a very large number of cases checked by radiographic examination have been investigated we are not justified in deciding against this ætiological factor in cases where treatment has presumably failed. And even here we are met with a difficulty in that jaw infection must have existed for some considerable time before radiographic changes become evident. In the early stages of deep jaw infection, then, radiology is useless; we must look to the bacteriologist in some way to fill this unfortunate gap. Of the cases suffering from general diseases supposed to be associated with oral sepsis which I have examined the majority have been over the age of 40—that is, over the age of commencing natural atrophy. That is one definite fact that has struck me, and the second fact that has struck me has been the extraordinary amount of infection that some of these patients must have harboured for years. Many of these patients stated that their general troubles were of recent date, so that for a long period they must have successfully put up a fight against the infection; and it is highly probable that others who do not come into the doctor's hands may ultimately be completely successful. Success would seem to be evident when sclerosis, in large or in small lonely masses, exists without the presence of rarefied areas or of the small dark spots. So long as these evidences of infection exist, however marked be the reparative changes, we must assume that they are kept up by organisms whose virulence, whatever it may originally have been, is now low; but, however low, they must still be regarded as living and capable of supplying the body with their toxins or even of themselves infecting the general circulation. That the mere removal of teeth and closure of the ports of entry of germs is not always sufficient to bring about a cure of the bone has been proved by the Americans. I have myself frequently noted the continued existence of deep infection in edentulous parts of jaws, but I have yet to satisfy myself that a completely edentulous jaw may retain infection for some years, though I have no doubt of its probable existence.

It follows from what I have said in this latter part of my paper that failures do not necessarily prove that oral sepsis was not causally related to the disease attributed to it, the failure being possibly due to the fact that the body is unable to rid itself of the deep jaw infection, or it may possibly be due to the fact that the disease cannot necessarily be cured by removing the cause. The latter reason may account for the frequent refusal of cases of arthritis to clear up. Since beginning the writing of this paper I have had the advantage of reading some records of American work on the subject. The reading has given me no reason to alter my views; it has, indeed, strengthened them. I will refer to one of these papers, by F. F. Molt, of Chicago, in which he deals with the subject of residual sepsis. He states that during the examination of over a thousand edentulous areas from which teeth, giving a history of previous pathological disturbance, had been removed by simple extraction, 41 per cent. showed evidence of residual infection—a very arresting statement. He also states that, on bacterial examination of the granulomata found so often at the apices of infected teeth, the majority show a mixed infection with streptococcus predominating, very few giving negative results. It is after the removal of such teeth areas of residual infection remain, and cultures made from hundreds of such areas show the same type of bacteria found in the granulomata themselves. Although I am not in a position to check Dr. Molt's statements I can see no reason for doubting them.

It is impossible to estimate the proportion of persons in this country who are suffering from jaw infection. One can safely say it is the vast majority, and it is the irony of fate that many who have paid particular attention to their teeth, having their dead teeth treated and saved, are often in the worst state. What is the result of this jaw infection? Does it in many cases remain innocuous, or does it in every case produce some systemic effect which in the minority only assumes so gross a form that it becomes clinically diagnosable? In "Injuries and Diseases of Bones and Joints," by Baetjer and Waters, both experienced radiologists, the following statement appears (p. 223): "Practically all of us when we reach the age of 45 show small exostoses in and around the joints, particularly where the ligaments attach, and yet there may be no clinical manifestation of an arthritic process." One may well ask, What causes these changes?

*Conclusion.*

Before closing this paper I wish to refer briefly to the possible means of dealing with jaw infection. In America an endeavour has been made to deal with the infected bone about the teeth by curettage, and for it they claim a reasonable amount of success. But it would seem from the evidence of radiograms to be impossible to curette away satisfactorily the whole of the infected bone, so that much must be left behind untouched, and much that has been damaged—the latter tissue being in a state that may lead to further troubles. Besides this surgical procedure there are at least two other possibilities open after the removal of the ports of infection: (1) By means of vaccines, and (2) by means of ionisation. These are mere suggestions, but they would seem to be measures well worth testing, and if adopted their value can be ascertained only by comparing the results of a long series of cases checked by subsequent radiographic examinations to a similar series in which no treatment has been adopted save that of extraction.

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THE LATE DR. W. GIBSON.—The death is recorded from Campbeltown, Argyll, of Dr. William Gibson, who died on Jan. 13th at the great age of 98, having lived during the reigns of five British sovereigns. Graduating M.D. at Edinburgh in 1854 and obtaining the L.R.C.S. Edin. in the same year, he afterwards held several public appointments in the district in which he practised, and retired only a little more than a year ago. Of the years of his life 65 had been devoted to public service.

# TWO CASES OF FEVER.

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THE following cases are of sufficient interest to merit record.

*Long-Continued Pyrexia due to Pneumococcic Infection.*

CASE 1.—The patient, a male aged 69, a farmer, was under the care of Mr. H. S. Desprez and Mr. C. V. Isard of North Tawton, and seen in consultation with them by Dr. W. Gordon. Illness began as "influenza" at the end of January, 1920, with the usual symptoms—headache and temperature. The patient stayed in bed for about a week, and then got up in his bedroom; two days later he was taken ill again, with high temperature, profuse perspiration and pains all over him, and severe headache, but no vomiting. Dr. Gordon saw him in consultation on Feb. 19th and March 8th. The temperature was maintained at 102°–103° F. for three weeks, and the patient had a curious dark red macular erythema over face, legs, arms, hands, and feet, with only two maculæ on the back and very few on the trunk. This rash persisted for at least three weeks. There was some catarrh of the naso-pharynx.

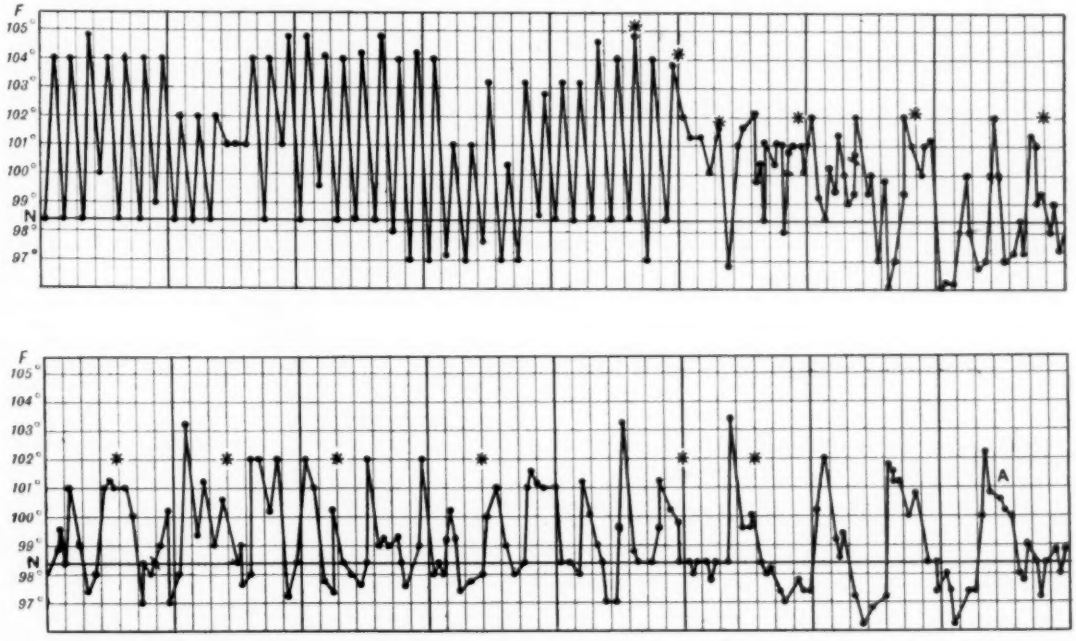


Chart of Case 1, showing patient's temperatures from Feb. 23rd to June 13th, 1920. The 12 asterisks indicate doses of autogenous vaccine; the letter A marks the point at which the temperature finally came down to normal.

On March 8th blood culture, with negative result. On the 24th blood culture again negative; agglutination tests to *B. typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B negative. Bacteriological examination of the urine negative. Blood count: white cells 19,000 per c.mm., differential count 75 per cent. of polymorphs. Culture from naso-pharynx gave a practically pure growth of the pneumococcus from which a vaccine was prepared and the first dose of half a million given on March 27th. No enlargement of liver, spleen, or glands. Heart and lungs normal; fundi normal; no albumin in urine.

The pyrexia continued as shown in the chart, and patient had various injections of vaccine (indicated by asterisks). On June 11th his temperature finally came down to normal and he made a complete recovery.

*Remarks.*—Here was a case where pyrexia was very prolonged, lasting from the end of January to June 11th. Besides the temperature there were very few symptoms—sweating, headache, and a curious macular rash, with some naso-pharyngeal catarrh, and, of course, weakness and increased pulse-rate. Blood cultures on two occasions were negative; I suppose the pyrexia, &c., was due to toxæmia proceeding from the focus of infection in the naso-pharynx. Enteric was excluded by the agglutination tests, and there was no infection of urine. There was a definite leucocytosis with increased percentage of polymorphs and a pneumococcus was isolated from a swab taken from the naso-pharynx. I certainly think recovery may justly be attributed to the vaccine, as the characters of the temperature curve show definite alteration after this vaccine was begun. On several occasions before the curve came finally to normal there were intermissions lasting for one or two days, and latterly the temperature had quite a "periodic" curve.

I would like to draw attention to the extraordinary steepness and regularity of the temperature chart before the vaccine was begun, being always normal or subnormal in the morning and up to 104°–105° in the evening. The pneumococcus by itself is often the cause of influenza-like attacks, and is then almost always to be found in the naso-pharynx, whence it may extend by lymphatics, or blood, to meninges, lung, peritoneal cavity, or joints.

I am indebted for the clinical notes of the above case to Dr. Gordon.

*Paratyphoid.*

CASE 2.—The patient, a male aged 40 (under the care of Mr. C. B. Kelly, of Exeter, and seen in consultation by Dr. Gordon), first consulted Mr. Kelly at the end of September, 1919. He had just returned from Exmouth and since resuming his practice as a dentist had complained of feeling out of sorts and tired. Had a slight cough, particularly at night. Chest examination showed slight dullness at the right apex, with prolonged expiration and a few moist sounds at the bases; general condition rather flabby, other organs normal.

A few weeks later Mr. Kelly recommended him to stay in bed. His bronchial symptoms had rather increased and evening temperatures rose to 99°, 99·6°, and 100° F., not more. Sputum was examined for T.B. with a negative result. About the middle of October he began to suffer from great pain in the left leg which prevented him from sleeping, being very intense along the course of the sciatic nerve. This continued for about a week and then disappeared. Patient's lassitude increased and his temperature began to run higher—100°–103° at night and 100° or thereabouts in the morning. There was then no headache, but the cough continued, with expectoration. On Nov. 3rd a swab from the throat

was examined for *B. diphtheriæ* with a negative result. He had a pseudo-membranous condition there, due to pyrexia and "sordes."

On Nov. 4th agglutination tests were carried out to *B. typhosus* and *B. paratyphosus* A and B by Dreyer's method. No agglutination to *B. typhosus* or to *B. paratyphosus* A. To *B. paratyphosus* B no agglutination 1/25, 1/50, or 1/125; definite agglutination 1/250, 1/1000, and 1/2500. On the 5th tests repeated; agglutination in 1/500, 1/2500, and 1/5000 at usual time. After prolonged stay in the water bath, agglutination to *B. paratyphosus* B in dilutions of 1/25, 1/50, 1/125 also; a definite "zone phenomenon" was therefore present.

Dr. Gordon saw the patient on Nov. 3rd and 13th. On the 3rd he was delirious and sleepless, with pains all over; temperature 103°, pulse 128, respiration 38, and dullness at right base. The urine contained much albumin; there was friction over right pleura, no enlargement of spleen; heart normal, no enlarged glands. Pyrexia continued, and about the end of the first week in November diarrhœa began, three or four loose stools a day and two or three at night. The patient was gradually getting weaker. On the 13th, when Dr. Gordon saw him again, he was delirious and very ill, with temperature 103°–104° (and once 106°), pulse 136; there were small petechial spots present. Patient died on Nov. 14th. About a week before death a small tumour the size of a large almond appeared in the right side of the sternum, just below the clavicle. This was incised by Mr. B. Dyball, who also withdrew fluid from the right pleural cavity.

*Bacteriological Examination.*—Pleural fluid sterile, containing only endothelial cells. From the blood-stained fluid obtained from the tumour a motile bacillus was isolated which gave the cultural and serological characters of *B. paratyphosus* B.

*Remarks.*—Note the prolonged course ending in a toxæmic state. Sciatica was one of the symptoms, but this passed off. Enteric sometimes starts with marked neuralgic symptoms, and peripheral neuritis is fairly common. As regards the agglutination test a very definite "zone of inhibition" in the lower dilutions appeared. This is liable to occur when the serum is heated, and as it frequently disappears when heating is prolonged it cannot be due to the formation of "agglutinoids," but, as Dreyer and Jex-Blake[1] pointed out, is probably due to some substance formed by heat which interferes with agglutination, but which by prolonged heating is subsequently dissolved and agglutination takes place.

The diagnosis was finally clinched by the isolation of *B. paratyphosus* B from the serum obtained from the small swelling in the chest. There was much albumin present, and probably *B. paratyphosus* B could have been recovered from the urine, as nephritis due to bacilli of the enteric group is fairly common. Paratyphoid is now appearing in civil practice and it is therefore always necessary to test serum of doubtful cases of enteric fever not only to *B. typhosus*, but also to *B. paratyphosus* A and B.

For the clinical notes of this case I am indebted to Mr. Kelly and Dr. Gordon.

[1] Journal of Pathology and Bacteriology, January, 1906.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### SECTION OF ELECTRO-THERAPEUTICS.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 20th, Dr. E. P. CUMBERBATCH, the President, being in the chair.

Dr. A. ZIMMERN (Salpêtrière, Paris) opened a discussion on

*Electro-therapeutics in Gynæcology.*

He said that the neglect of electricity in gynæcological treatment was surprising when the recent developments of this agent in the treatment of skin diseases, and also in urology, was considered. In the electrical treatment of gynæcological conditions but little progress seemed to have been made since the time of Apostoli.

*Fibroids.*—Apostoli's method of treating uterine fibroids had been widely appreciated at the time when the mortality of hysterectomy was still very high; later it was employed for inoperable fibroids only. At the present time, in spite of the relative benignity of the operation, medical treatment in conjunction with X rays was again being used. Dr. Zimmern thought there was a great field for galvanic treatment. He knew of cases where this had controlled hæmorrhages which could not be stopped either by X rays or by radium.

*Metritis.*—In cases of metritis the success of electrical treatment rested on correct diagnosis; leaving out the case of acute metritis, two types generally met with were (1) those due to a chronic infection such as gonococcal or puerperal, (2) those due to various pathological conditions, among which virginal metritis, menopausal metritis, and subinvolution could be distinguished. In diagnosing the type of metritis, the history and the character of the discharge would supply valuable information.

In these cases there were available the following methods of electrical treatment: (1) Galvanic current with positive pole introduced into the uterus; (2) the same with negative pole; (3) ionic electrolysis; (4) the high-frequency current. As a rule it was best to use positive cauterisation when the metritis was complicated by menorrhagia or metrorrhagia. A carbon sound of suitable size was the most suitable. If the hæmorrhage resulted from paralysis of the muscle, the passage of the galvanic current would be sufficient to stimulate the muscle wall; and if it resulted from ulceration the effect would be a caustic one. The intensity of the current must generally be high. Dr. Zimmern's own experience was that it was wise to begin with weak intensities, about 20 milliampères (m.a.), and to increase the strength of current so long as it was "supportable without immediate or consecutive pain." In most cases it was advisable not to use a speculum. With practice it became simple to guide the sound upward into the uterine canal with the fingers of the left hand in the vagina. If the uterine cavity was to be cauterised, the sound must be drawn slowly down during the passage of the current so as to reach every part of the wall; it should be held in each position about two minutes, and a complete treatment would require 5 to 10 minutes. Usually 5 to 15 treatments were required. If, however, in spite of the use of electricity the hæmorrhage was not stopped, or was increased, as sometimes occurred, the patient must obviously be urged to undergo operation. In 99 per cent. of such cases a submucous fibroid or polypus was the cause. If hæmorrhage was not a marked symptom, and if the metritis was not recent, good results were obtained with the negative galvanic current, using a medium strength of 15–20 m.a. Leucorrhœa became more abundant after its use, and thus a beneficial hypersecretion was induced. While curetting the uterus always left the deep-seated glands buried in the muscles, and antiseptic irrigations did not penetrate beneath the surface, electrical treatment produced a flooding of rejected mucus from inside to outside and thus established drainage. The negative pole was employed for these cases in view of its exciting power upon glands. Another method applicable to these cases was the resonatory spark of the high-frequency current, which also appeared to stimulate glandular hypersecretion in much the same way. Dr. Zimmern exhibited a sound devised for this purpose by his pupil Coltenot.

*Gonorrhœal Cervicitis.*—This might be a legacy from an old total metritis or might be gonococcal. In this latter case silver ionisation was invaluable, not only for recent but even for old-standing infections, originally gonorrhœal, in which the gonococcus could

not be detected. A silver sound connected with the positive pole should be introduced, and a current of not more than 20 m.a. passed for 5–10 minutes. Two such sittings a week for 3–4 weeks should cure favourable cases. Dr. Zimmern reminded the section that the sound would adhere to the tissues unless the current were reversed for a few minutes before extraction. When the tubes and ovaries were involved electrical treatment was dangerous, and should not be employed until inflammation of the adnexa had subsided under the classical treatment. Fever or excessive pain after treatment were also contra-indications.

*Dysmenorrhœa.*—There were two forms of dysmenorrhœa, the nervous, which was very rare, and the obstructive, much the more common. The latter might be due to fibroid tumours, congestion of the tubes resulting in diminished lumen, flexion of the uterus, and stricture of the cervix. For dysmenorrhœa was attributed to flexures, and Dr. Zimmern had had great success from electrical treatment combined with progressive straightening by means of tampons placed in the anterior or posterior fornix, according to the nature of the flexion. A carbon sound, wrapped in cotton-wool, was introduced behind the uterus and a faradic current of medium strength was passed; the dispersing electrode should be placed upon the lower part of the abdomen. Stricture of the cervix might be congenital or acquired —e.g., following parturition operations, &c. Treatment usually consisted in dilatation, but the results of this method were not lasting; hence the more severe operations, such as amputation of the cervix. Electrical treatment was most reliable and free from danger. A metal sound connected with the negative pole was inserted into the uterus through a speculum, and a current of 6 to 10 m.a. passed for a few minutes. It was remarkable how easily a sound negatively charged could be introduced into the uterus; for this reason the sound should be introduced with the current flowing. The number of sittings required was variable.

*Amenorrhœa and Sterility.*—Negative electrolysis was very useful in these conditions. The amenorrhœa of young girls was often associated with infantilism; while another type occurred in obese women approaching the menopause. Both varieties were due to ovarian insufficiency, and could be favourably influenced by negative galvanism, administered two or three times in the week preceding the presumed period. Ovarian extract, and sometimes thyroid extract, should be combined with electricity. The amenorrhœa artificially produced by X ray treatment of fibroids was accompanied by disturbances of ovarian function, exhibited by flushings, headaches, and other discomforts. Dr. Zimmern had relieved patients by negative galvanism of these unpleasant sequelæ. Sterility was most frequently due to uterine flexure and stricture, the treatment of which had already been described.

*Pelvic Pain.*—At every gynæcological clinic there appeared to be a number of patients who complained of pain in the lower abdomen without any discoverable lesion. Many of these cases had no pelvic lesion, but were lumbar neuralgias, comparable with the well-recognised tracheal neuralgias and sciaticas; such cases responded more readily to radicular X ray treatment than to any form of electrical treatment.

*Subinvolution.*—After parturition many women suffered from persistent hæmorrhage. Where curettage failed to cure this, galvanism should be tried, for Dr. Zimmern had had numerous successes.

Another distressing sequel of parturition—paresis of the sphincters with incontinence of urine—could be successfully treated by faradism. The incontinence of children, he was convinced, did not respond to electro-therapy. Dr. Zimmern's paper concluded with a reference to the brilliant results obtained by the high-frequency current in the treatment of anal fissure.

*Diathermy for Gonorrhœal Cervicitis.*

Dr. A. C. ROBINSON described the use of diathermy for gonococcal infection in the female. Dr. Cumberbatch had tried the experiment of treating all cases of rheumatoid arthritis at St. Bartholomew's Hospital by diathermy; only the gonococcal cases did well. Encouraged by this result, Dr. Robinson then tried diathermy for gonococcal cervicitis and vaginitis. In his first case a single treatment banished gonococci from a discharge in which they had previously been found. The technique employed was the insertion of 10 per cent. saline swab held in forceps against the cervix, the forceps being employed as one electrode. In the next case three treatments banished gonococci from the cervix, although they were still found in the urethral discharge. Three sittings, at which the treatment was applied to the urethra, cured the patient. Dr. Robinson had now treated 12 cases in which there was a positive bacteriological diagnosis by this method, each patient undergoing three to five séances; 11 cases were cured, and the one remaining case which was not cured he thought might be fairly ascribed to reinfection, since the husband was still attending the male clinic for gonorrhœa. As regards the permanency of these results, cases of this sort were notoriously difficult to follow, but one case which he had been able to trace remained cured after more than 12 months. It was a striking fact that gonococcal joints were immediately improved by diathermy, and were often cured by diathermy to the cervix and urethra alone, without any local joint treatment. Dr. Robinson's explanation of the vulnerability of the gonococcus to diathermy was that the organism was killed by a temperature 102°–104° F., while one effect of diathermy was well known to be considerable local heating. It was difficult to measure the temperature attained in the cervix, but in the penis he had attained a temperature of 113° by diathermy without producing pain or any ill effects.

*Electrical Treatment of Uterine Hæmorrhage.*

Dr. AGNES SAVILL spoke on the treatment of uterine hæmorrhage, apart from that due to fibroids and cancer, by electrical methods. The French had worked at this subject long before it had been thought of in this country. For many years the late Dr. Samuel Sloan had been the sole worker in Britain. The forms of uterine hæmorrhage in which the galvanic current was curative were (1) those associated with cervical discharge and erosion, (2) those associated with endometritis, (3) those due to cervical polypi, (4) those occurring at the menopause, (5) cases of enlarged uteri, without disease of ovary or tube, (6) the apparently causeless forms met with in young women. Cases illustrating these conditions, with details of the procedure adopted, were quoted; and the technique was then briefly considered by Dr. Savill, who believed that the benefit obtained was not due merely to the antiseptic action of local copper or zinc ions, but also to the restorative effect of the current on the muscle cells and perhaps to endocrine stimulation. In all the cases with enlarged uteri it was a remarkable fact that after three to five applications the size of the uterus had been reduced to normal, and had remained so on examination some months later. Improvement in the regularity of the periods was another remarkable result of the electrical treatment. Dr. Savill considered that electrical treatment should always be tried before hysterectomy was advised.

*Ionisation for Endocervicitis.*

Dr. ELIZABETH SLOAN CHESSER said that the methods she employed for the treatment of endocervicitis by ionisation and of atony of the bladder with incontinence were taught her by her father, the late Dr. Samuel Sloan. In endocervicitis she used a zinc or copper electrode attached to the positive pole of a galvanic battery. This was inserted (after thorough cleaning with cotton-wool) through a glass speculum, and a current of from 15–20 m.a. was given for 20 minutes. One ounce of copper sulphate or zinc

sulphate solution might be inserted into the speculum. When a copper electrode was used it adhered to the mucous membrane, and the current had to be reversed for about three minutes before removal. Her experience was that ionisation offered the best prospect of permanent cure of endocervicitis, and that the condition rarely, if ever, recurred. Ionisation of the urethra was carried out by a zinc electrode. A small current of 1 to 2 or 3 m.a. was given for 5–15 minutes in cases of chronic gonorrhœal infection. Bipolar faradisation of the bladder was now invaluable where there was paresis of the sphincter or a chronic cystitis with atony of the muscular wall of the bladder. The current was taken from the secondary through a metronome interrupter and a Sloan's faradimeter. A small dose of 1 to 2 or 3 m.a. was given for 15 minutes daily for 10 to 12 days.

Dr. WALTER J. TURRELL spoke on the

*Treatment of Amenorrhœa and Dysmenorrhœa by Diathermy.*

He said that the therapeutic action of diathermy could be readily explained. The primary effects of high-frequency currents of quantity was to heat up any organ, however deeply situated, or any part of the body to any required temperature. The consecutive effects of such heating were the dilatation of the blood-vessels, the relaxation of tension and spasm, and increased blood-supply, and consequently increased nutrition, and increased functional activity of the part treated. This action of diathermy was divisible into two parts: (1) the relief of pain resulting from relaxation of spasm and tension, and (2) an improvement in nutrition due to an increased blood-supply. He considered that the technique should not be necessarily the same in the two cases. When relief of pain was arrived at, the current should be applied at a relatively greater intensity, and for a comparatively longer time, than if nutritional effects were aimed at, as in amenorrhœa. In the treatment of dysmenorrhœa the object was to induce relaxation of spasm, and so a stronger current should be applied for a shorter time. Electrical treatment was not applicable to all cases of amenorrhœa, whatever their causation, but Dr. Turrell thought it was a rational treatment in that class of case of delayed puberty described in Dr. Halliday Croom's article in Allbutt's System of Gynæcology.

Dr. Turrell quoted a case where treatment for secondary amenorrhœa consisted in the administration of diathermy through the ovaries from the abdomen to the back, using 20 × 10 cm. electrodes and a current of 1 ampère for 30 minutes daily for the three days preceding the date at which the period should begin. After three cycles of such treatment menstruation was re-established, and had continued normally for the past 12 months. He then described briefly the treatment of dysmenorrhœa by diathermy. The technique consisted in administering for the three days preceding menstruation a current of 2–2½ ampères through each ovary in turn from the abdomen to the back for 10 minutes, using 20 × 10 cm. electrodes.

*Some Further Points.*

Dr. A. LAPTHORN SMITH said that at one time he had treated by electrical methods 108 women, of whom 103 were symptomatically cured, the fibroid shrinking and menorrhagia ceasing. The treatment was, however, very tedious, and when improvements in technique resulted in lowered operation mortality he once more advised surgical treatment for his patients. He had used a platinum sound attached to a negative pole of a 60-celled battery, and he was convinced that the uterus would stand the necessary manipulation provided it were aseptically performed.

Dr. G. B. BATTEN commented on the beneficial effect of the high-frequency current on hæmorrhoids and anal fissure. For successful results the sittings must be of 20 minutes duration, since very little benefit appeared to be derived from the first 10 minutes.

Dr. S. M. SLOAN pointed out a use of ionisation not previously referred to—i.e., the sterilisation of the vagina by ionisation with iodine prior to the introduction of an electrical sound into the cervix. He also referred to the beneficial effect of the high-frequency current in cases where a peri-uterine non-suppurative exudate existed.

Dr. JOHN ELLISON, speaking as a gynæcologist, expressed the hope that in all the cases of endometritis treated by electrical methods malignant disease had been excluded by curettage or examination of a section from the cervix. He also pointed out that there was a risk of malignant change occurring in the fibroids symptomatically cured by electrical treatment—a risk which only surgical intervention could entirely eliminate.

The proceedings were closed by a vote of thanks to Dr. Zimmern, proposed by Dr. TURRELL, who referred to the pioneer work done by the French in electro-therapeutics.

## MEDICO-LEGAL SOCIETY.

A MEETING of this Society was held at 11, Chandos-street, London, W., on Jan. 17th, with Lord Justice ATKIN, the President, in the chair.

Prof. HARVEY LITTLEJOHN (Edinburgh) read a paper on

*The Proof of Live Birth in Criminal Cases.*

He said that the crime of infanticide had been prevalent for centuries; and it had been necessary for medical men to determine by a post-mortem examination whether the child, in a case of suspected infanticide, had been born alive. In this country special difficulty was raised by the legal interpretation of "live birth," which was only held to occur when the child was still alive at the moment of complete delivery from the mother's body. Respiration was generally accepted as the criterion of live birth. In no class of medico-legal case was medical evidence so generally unsatisfactory, probably because while text-books described the hydrostatic and other tests, medical students had no practical experience of post-mortem examinations of these cases. From text-books one would conclude that the hydrostatic test gave definite evidence of the occurrence of respiration, but, in his opinion, the test by itself was not reliable. Post-mortem examination with the object of ascertaining the exact cause of death should be conducted on a definite plan; he recommended examination of the skull and brain before the thorax was opened and the blood allowed to drain away from the great vessels. The skull should be examined for fracture, and the presence of a caput which might indicate the duration and severity of labour, and the presentation of the child. The brain should be examined for hæmorrhage, which might itself cause asphyxia after birth. The mouth and air-passages should next be examined, and the tongue and larynx be carefully dissected out and removed after a ligature had been placed round the upper part of the trachea and œsophagus. The organs removed should then be laid open in front and examined for a plug of mucus or other possible obstruction to respiration. A small portion of the secretion in the larynx should be microscopically examined for the presence of meconium, lanugo hairs, and vernix caseosa; the presence of any one of these indicating attempts at respiration before birth, and the probability of asphyxia from natural causes. The thorax should then be opened and the lungs and the heart, with the trachea still ligatured, removed, and the flotation test applied. The lungs should also be examined for crepitations, and with a hand lens for the fine mosaic of expanded air vesicles, which, in his opinion, was the most reliable indication of respiration having occurred. Microscopic examination of any secretion in the bronchi was also important in connexion with asphyxia from natural causes. The next step should be the examination of

the abdominal organs; air would certainly be present in the stomach and intestines if the child had breathed for any length of time. Prof. Littlejohn believed that air was swallowed during the earliest respirations, and that the longer respiration had continued the further down the gut air penetrated. In still-born children gas was never found in the stomach or any part of the gut. When the lungs were properly expanded and air was found in the stomach, he held that live birth had occurred. Only two possible fallacies could be urged: (1) that the lungs had been artificially inflated, and (2) that putrefaction was responsible for the inflation of the organs. But mouth-to-mouth inflation, a most difficult practice for a trained medical man, was practically impossible for the mother. Secondly, putrefaction did not readily occur in the aseptic lungs of a still-born child. He had been struck by the natural appearance of the lungs of still-born children examined many weeks after death, when advanced putrefaction had occurred in other parts. Early decomposition of the lungs he therefore held to be a strong indication of respiration having occurred and organisms having thereby gained access. Further, the bubbles of gas in the putrefying lung in no way resembled the mosaic pattern occurring in the naturally inflated lung. These births were, as a rule, secret, unassisted, normal labours, and if respiration occurred at all, it was practically impossible that it should cease during birth without any cause discoverable post mortem. Respiration while the child was still in the uterus or in the vagina only occurred in assisted births, where manual interference allowed air to penetrate into the maternal passages. If the child's shoulders became impacted and death occurred from asphyxia while the head was delivered, then the lungs would not be found fully expanded after death. How often did the child which had begun to breathe before the shoulders were born stop breathing before complete birth took place? He held complete expansion of the lungs to be definite proof of live birth even in the legal sense, and he hoped that full ventilation of the subject would result in the withdrawal or modification of such statements as that in Taylor's Medicine, that for legal proof of respiration having occurred an eye-witness was necessary.

*Discussion.*

The PRESIDENT said that in the legal trial of women accused of infanticide the accused invariably got the benefit of any possible doubt. Undoubtedly many escaped proper punishment because the crime was a capital one, and he had long thought that it would be advisable to reduce the penalty in order to secure more frequent convictions, and thus diminish the prevalence of the crime. He added that defending counsel were often able to suggest to the medical man giving evidence in these cases all the doubts advanced in medical text-books. The importance of having all the facts at his finger's ends should therefore be impressed on every medical witness.

Sir WILLIAM WILLCOX thought the post-mortem examinations of these cases should only be performed by experts; practitioners with no special experience, often inadvertently destroyed evidence that might have been discovered by an expert. The text-books gave the inexperienced examiner very little help, and he emphasised the importance of conducting the post-mortem examination according to the plan described by Prof. Littlejohn.

Dr. AITCHISON ROBERTSON said that full expansion of the lungs might be excellent proof of live birth from the medical point of view but it could not be said to constitute legal proof. He, and probably every medical man, had seen children breathing before they were wholly born. If, then, he were asked to swear that the child breathed after being fully delivered he could not do so simply on post-mortem evidence. The hydrostatic test he thought totally unreliable, since he had found lungs sink which had been taken from children known to have lived and breathed for hours. As regards respiration in utero, he had recently heard the cry of a kitten before birth of any part of it had occurred; indubitable cases of the same kind in human beings were recorded in medical literature.

Dr. GODFREY CARTER said he had records of a number of cases of believed infanticide. In the last two all the tests described by Prof. Littlejohn gave evidence of live birth, and a tight ligature found round the neck supplied the obvious cause of death. Yet in neither case was the charge brought home, simply because nobody could swear that every portion of the child's body was delivered when death took place. The law, or the legal reading of the law, must be altered. He believed that no statutory definition of live birth existed, but that the present interpretation was a mere judicial tradition.

Dr. B. SPILSBURY said that in one interesting case medical evidence alone was able to secure a conviction. In this case the child had been heard to cry and was found some time later dead with a tight ligature round the neck. Marks on the body indicated a breech presentation. He endorsed all that Prof. Littlejohn had said as regards the post-mortem examination and wished to emphasise the importance of avoiding any rough handling of the body before the examination, as this might result in the disturbance of mucus or other impediments to respiration in the air-passages. He had seen putrefaction of the lung occur in the case of children born into privies, but the microscope revealed the fact that the gas was not in the alveoli. Heat might also cause the appearance of gas in the lung as occurred in a curious case: a servant girl gave birth to a child in the kitchen and put it in the fire, but finding it not destroyed put it in the waste bin in which the body was discovered. In this case also the microscope showed no gas in the alveoli, so that no charge of infanticide could be preferred. As regards cessation of breathing during birth, Dr. Spilsbury agreed with Prof. Littlejohn in thinking it very improbable that in these cases the lungs would be found fully inflated when the cause of death was presumably pressure of the maternal parts upon the undelivered thorax. He had recently been experimenting with a new test depending on the change which occurred in the aeration of the blood after birth. Before birth there was no difference in the gas content of the blood from the two sides of the heart, whereas after birth and respiration the blood in the left heart had a higher oxygen content and a brighter arterial hue. The technique of this test was not sufficiently developed for it to be of any great value as yet.

Dr. B. O'CONNOR did not agree with Prof. Littlejohn as regards the hydrostatic test, which, in his opinion, when combined with the appearance of few little red spots in the upper part of the lung, provided conclusive evidence of live birth in the medical sense. In the legal sense live birth was exceedingly difficult to prove. Every obstetrician must have heard a child cry lustily when only the head was delivered. Would not these children exhibit full inflation of the lung post mortem supposing death to occur from any cause before complete delivery?

Dr. W. A. BREND urged the alteration of the law so that the penalty was lessened, becoming operative for acts at or during birth which caused the death of the child.

*Reply.*

In reply, Prof. LITTLEJOHN said the decision must be left to the lawyers. It was for the medical profession to come to some reasonable conclusion as to the cause of death, and evidence of violence such as would cause death, combined with post-mortem evidence of respiration, should enable the medical man to make a statement according to the best of his knowledge and belief. From the medical point of view evidence of respiration having occurred was evidence of live birth. He looked forward with interest to the elaboration of Dr. Spilsbury's new test but without much hope, since he did not think it could supply any more certain information than could be found in the lungs and intestines.

## SOUTH-WEST LONDON MEDICAL SOCIETY.

AT a meeting of this Society held on Jan. 18th, DR. E. J. PRITCHARD, the President, being in the chair, Prof. F. S. LANGMEAD read a paper on

*Intrathoracic Tuberculosis in Children.*

After pointing out the elusive nature of this form of tuberculosis in children, he said that pulmonary tuberculosis of the adult form was relatively rare in children in whom it was essentially a disease of the lymphatic glands. Affection of the lung was generally secondarily and occurred at a comparatively late stage of the malady; when easily recognised the case was always serious and often fatal. From tuberculin tests and post-mortem evidence we knew that few people reach adult life without showing traces of previous tuberculous infection, yet such infection was only detected in a few per thousand school children during routine examination. Prof. Langmead took exception to the terms "pretuberculous" and "tuberculous infection" where these terms were intended to denote something different from tuberculous disease. He held that a child is either tuberculous or is not. Tuberculous infection meant that a lesion existed, however small, whilst the term "pretuberculous child," as commonly used, meant merely that the child was suspected of being tuberculous, but that the evidence was inconclusive. In the search for earlier manifestations of tuberculous disease in children, the inquirer would do well to abandon these terms. Tuberculosis in children was a benign disease, and seldom became diagnosed with certainty at the present time unless either the infection was massive or the resistance poor. After dealing with the anatomical positions in which tuberculous glands are usually found in the thoraces of children, he divided the evidences of their presence into the following groups: (1) symptoms due to toxæmia; (2) symptoms and signs related to the anatomical position of the glands; (3) symptoms and signs due to the passage of bacilli from the glands into the air passages; (4) effects of escape of bacilli into the blood-stream; (5) evidences elicited by bacteriological and radiographic methods. In the absence of complications the diagnosis of intrathoracic tuberculous glands generally rested upon a combination of symptoms and physical signs, none of which was pathognomonic or even convincing when taken alone, but all of which should be considered together. Symptoms without signs were insufficient to establish a diagnosis, whilst signs without symptoms could no more than indicate that at some time or other the patient had been a subject of the disease. He cautioned against notification before measures had been taken to allow of careful observation, and outlined a procedure which might be adopted to assist in a correct diagnosis.

## MIDLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held at the Medical Institute, Birmingham, on Jan. 3rd, Prof. EWEN MACLEAN, the President, being in the chair.

*Exhibition of Specimens.*

Mr. FURNEAUX JORDAN showed a specimen of myxosarcoma of the Fallopian tube. The growth was in the left corner of the uterus and in the left tube, and had been removed from a multipara, aged 47, giving a history of 12 months menorrhagia. At the operation numerous secondary deposits were found in the pelvis, and hysterectomy was performed solely for the arrest of hæmorrhage. In connexion with this case Mr. Jordan reported the case of a school-girl, aged 16, in whom the sudden onset of profuse hæmorrhage was accompanied by the appearance of a tumour at the vulva. The tumour was removed by ligation of its pedicle by the practitioner in attendance; six weeks later hæmorrhage recurred and the vagina was found to be again filled with soft friable growth. This was found to be a botryoid sarcoma, and total hysterectomy was performed.

Mr. JORDAN also showed a specimen of parovarian cyst complicating pregnancy. The patient, a primigravida, eight months pregnant, was found to have a large cyst in the pouch of Douglas. Cæsarean section at term was advised and performed, when the tumour was found to be a pedunculated parovarian cyst. Removal of the cyst at the time of its discovery, Mr. Jordan considered, was contra-indicated by the undesirability of exposing the woman to labour with a newly healed scar, and tapping of the cyst at the onset of labour would have been unwise in view of the preponderance of dermoids amongst cysts of this class. Mr. Jordan discussed the case of another woman, four months pregnant, with similar symptoms in whom a solid tumour was felt in the pouch. The tumour, which was a fibromyoma growing in the posterior wall of the uterus, was removed by myomectomy, and the pregnancy continued uneventfully.

Dr. H. SHUFFLEBOTHAM showed a large teratoma of the ovary removed from a woman, aged 34. The tumour presented as a nodular mass filling the pelvis, extending upwards to the umbilicus. On opening the abdomen the mass was found fixed to the back of the uterus with many intestinal and omental adhesions. The tumour, though largely solid, contained isolated cysts and some bone. Histologically, elements of all the layers of the trilaminar blastoderm were represented. There was no evidence of malignancy.

Dr. SHUFFLEBOTHAM also showed a large pedunculated fibromyoma removed from a patient, aged 50, who gave a history of pain and constipation of three weeks' duration. A central tumour extending to just above the umbilicus was present. At laparotomy the tumour was found to be a large fibroid originating from the right corner of the uterus and having three complete twists in its pedicle.

Dr. W. A. POTTS read a paper on

*Psycho-Therapy in Relation to Obstetrics and Gynæcology.*

Having given a general review of the respective rôles of hypnosis, suggestion, and analysis in psycho-therapy, he went on to show how and when these might be used in the treatment of certain obstetrical and gynæcological disorders. In particular he thought psycho-therapy of value in the treatment of labour, and those disorders of menstruation associated with pain, by removing or lessening the unreasoning dread of the unknown experienced in greater or less degree by most women.

## WEST KENT MEDICO-CHIRURGICAL SOCIETY.

A CLINICAL meeting of this Society was held on Jan. 13th at the Miller Hospital, Greenwich.

Mr. WILLMOTT EVANS showed a case of multiple exostoses in a man also suffering from dwarfism.

Mr. C. A. JOLL showed a young woman from whom he had removed a hard node on the right clavicle; a man, aged 43, with Pott's disease of spine, treated by bone-graft from the tibia; and a young woman with a myeloma of right humerus.

Dr. HAROLD PRITCHARD described the treatment of a case of pernicious anæmia with intramuscular injections of collosal manganese, and showed a child with two hard nodes, one on fibula and one on tibia which developed after acute septic meningitis.

Dr. BOWEN WILLIAMS showed a man operated on by Mr. H. Davies for stricture of the stomach due to swallowing sulphuric acid.

Dr. JAMESON showed cases of ulcer of tongue, of dyspepsia, and one of a head injury which had caused, six years later, spastic paralysis of legs, relieved by a decompression operation.

# Reviews and Notices of Books.

KEEN'S SURGERY.

Supplementary Vols. VII. and VIII. Edited by WILLIAM WILLIAMS KEEN, M.D., LL.D., Emeritus Professor of the Principles of Surgery and Clinical Surgery, Jefferson Medical College, Philadelphia. London and Philadelphia: W. B. Saunders Company. Pp. 855 and 960. 1921. £6 6s.

DURING the period 1914–1918 medicine and surgery alone sought to repair and recreate, all other effort being concentrated on the means of destruction. The reward was opportunity and experience such as no 20 years of civil work could have given. The military leader is content to wait a generation before his work is assessed, but the surgeon has to face a public demand for the immediate application of the results of his war experience to practice in peace. There can thus be no delay in taking stock, and in making some attempt to estimate what should be retained and what unlearned, for there is no greater mistake—and none more common—than to suppose that every procedure devised in the stress of war surgery should be applied to civilian practice.

It is with this judicial purpose in mind that at least one of the additional volumes (Vol. VII.) to Keen's Surgery has been written, while Vol. VIII. serves the no less useful purpose of recording advances in surgical work in civil practice in the years 1914–1919. These new volumes are closely connected with the first six, every chapter being designed to supplement certain chapters in the main work. Vol. VII. opens with a chapter on inflammation by Prof. J. G. Adami, where he summarises the study of pus and its properties; Prof. Geo. P. Muller deals with diseases caused by animals, insects, and reptiles, and with anthrax; and Prof. Jay F. Schamberg discusses the surgery of the skin and syphilis, giving a short but comprehensive account of the modern lines of treatment. Gas gangrene, which, although known and described in pre-antiseptic days had not been a disease of any consequence in any of the early wars of the twentieth century, became prominent in France and Belgium during this war. Sir Cuthbert Wallace describes its pathology in an admirable article freely illustrated with coloured reproductions, though perhaps insufficient stress is laid on the evidence against the conception of gas gangrene as primarily a disease of muscle. The practical elimination of tetanus during the war is dealt with by Dr. Fred T. Murphy. There follow some 180 pages of matter on the organisation and the administration of the U.S. Army and Navy, and on surgery in a fighting ship, which though historically they may be of value and of interest, appear irrelevant and out of place in a text-book of surgery. Such organisation cannot serve as a model for the future, since weapons and strategy change so rapidly, and the account contains few lessons applicable to civil practice.

Prof. W. B. Cannon, in a lucid exposition of the known facts concerning traumatic shock, revives the atmosphere of the earlier sections of the volume. He attempts to propound no theory, but describes all the facts, offers an explanation of these, and deduces a technique of treatment. So much of his contribution is the result of his own work during the war that it is especially valuable. Prof. F. T. Dercum, considering shell shock, brings much evidence to prove that it is nothing but a form of traumatic hysteria. Prof. Burton J. Lee points out that the war has raised transfusion of blood from the theoretical plane to that of a practical life-saving measure, and this is therefore one of the greatest advances in clinical surgery that has developed of recent years. Prof. J. H. Gibbon contributes a section on surgical technique, describing many new methods of wound treatment. Primary suture of all wounds is the ideal to be aimed at, and, failing this, secondary suture as soon as feasible. He discusses at some length "débridement" of the damaged tissues and the destruction of the infection by the Carrel-Dakin method of treatment. Many other agents are discussed — dichloramin T, flavine, brilliant-green, bipp, and salt solution; but Prof. Gibbon gives pride of place to the Carrel–Dakin technique, which has certainly given excellent results. Fractures other than those due to gunshot wounds are dealt with by Prof. D. N. Eisendrath and Dr. D. C. Strauss. These contributors believe that, given certain necessary conditions, "open reduction will be more and more employed in the future, and the end-results correspondingly improved." The treatment of every type of gunshot fracture is described by Dr. J. A. Blake, most attention being given to the femur.

The pathology of wounds and injuries of the nervous system falls to Prof. W. B. Cadwalader, while Sir William Thorburn presents a most lucid exposition of the surgery of the spine and spinal cord, and of the peripheral nerves. Prof. E. H. Pool discusses the military surgery of joints. Probably no subject has been revolutionised so completely as that of infected joints. Before the war closure of such joints without drainage and their immediate mobilisation would have been almost grounds for a suit for malpraxis, whereas now this is the recognised treatment. Willems's methods are fully described, as are also special details of technique for particular joints. The section on orthopædic surgery is contributed by Prof. R. H. Lovett, and that on military orthopædics by Sir Robert Jones and Mr. E. W. Hey Groves. The Military Surgery of the Vascular System is the title of Prof. Matas's article, which is divided into two parts, Part I. dealing with the heart and pericardium, and including the migration of foreign bodies in the vascular system, the routes of access to the heart, the radiologic peculiarities of projectiles in the heart, and finally the indications for the delayed removal of foreign bodies from the heart. Part II. gives in detail the incidence, pathology, and treatment of wounds of the blood-vessels. The subject of traumatic aneurysms, including the arterio-venous forms, is discussed at length, and an excellent description of the tests of the efficiency of the collateral circulation before the occlusion of the great surgical arteries is given.

Vol. VIII. opens with chapters on the adrenals, thyroid, and pituitary glands by various authors, and there follows a discussion on amputations by Dr. W. J. Taylor. Many of the old classical amputations were tried and found wanting during the war, and are now obsolete. They are, however, still taught in the medical schools, and this chapter should accelerate the revision which the whole subject of operative surgery as now taught badly needs. It is here shown exactly where amputations should be performed with a view to obtaining the best possible functional results. Prof. J. P. Warbasse discusses the operations on bones and joints, including bone-grafting, arthroplasty, and arthrodesis. The surgery of the head is dealt with by Dr. H. Neuhoff, who gives an account of the treatment of head wounds, of Dandy's new work on hydrocephalus, and of the surgery of brain tumours. Wounds of face and jaws are dealt with by Dr. H. H. Harte and Dr. W. E. Lee, embodying much of Gillies's work. The latest developments in the surgery of the thorax, abdomen, and the genito-urinary tract are fully considered by various authors. There is an excellent chapter on physio-therapy and the re-education of the maimed, and also on specific therapy in surgical diseases. The contributions on radium, X rays, and on the high-frequency current for the destruction of pathological conditions are all brought up to date. Chapters on anæsthesia, poison gases, and the legal relations of the surgeon conclude the volume.

The appearance of these two volumes brings Keen's Surgery well abreast of the times. Since its publication it has held a premier place in the English language amongst works on surgery, and there need be no fear of its being ousted from its position.

### THE PATHOLOGY OF INFLUENZA.

By M. C. WINTERNITZ, ISABEL M. WASON, and FRANK P. MCNAMARA. Yale University Press, New Haven; London: Humphrey Milford, Oxford University Press. 1920. Pp. 60. 80*s*.

THE importance of this work lies in its detailed description of the various pathological lesions observed during the epidemic of influenza which appeared in the late autumn of 1918 in New Haven, U.S.A., and Winternitz and his collaborators are to be congratulated on the success they have achieved in its preparation. The pathological material was obtained from 82 fatal cases in the New Haven Hospital (Yale Medical School), and this number was augmented by other cases from U.S.A. Hospital No. 16.

The greater part of the text is devoted to a description of the gross and minute pathology of the lesions observed in the respiratory tract; lesions of less importance in other parts of the body are dealt with as occasion arises. In general, the observations of the authors show that the gross pathology of the cases did not differ materially from that seen on this side of the Atlantic. Any differences observed were minor and not constant. For instance, Winternitz and his colleagues did not observe any diphtheria-like membrane on the trachea or definite signs of nephritis. The descriptive summary of the pathology of acute fulminating influenza is as follows:—

"The well-developed post-mortem rigidity, the lividity of the dependent parts, of the face with its mucous membranes, and often of the trunk, the jaundice variable in extent, the crusts of blood on the nares and mouth, and the splanchnic dilatation are features which prepare for the gross picture presented by the thoracic organs. The increased moisture within the pleural cavities associated with the even, translucent pleural surface, whose dilated lymphatics become more and more prominent towards the hilum, the large succulent lymph glands, and the exudate in the bronchial tree, are all striking, but more characteristic of the gross picture is the great increase in the volume of the lung itself, mottled with brilliant colours. The lung, too, is very wet, and on section, after the syrupy, blood-stained fluid escapes from the less definitely consolidated zones, the latter appear not as the usual granular form areas of hepatisation, but has more the consistency of a gel and also its translucence."

Histological examinations showed a diffuse involvement of all the lung tissue with a serous exudate in the subpleural, interstitial, perivascular and peribronchial tissues, as well as in the alveoli. This condition is associated with cellular elements which occur in aplastic reactions—red blood cells, fibrin and bacteria, and, in addition, there is a necrosis of the bronchial and alveolar epithelium. The authors consider that this histological picture can be regarded as specific; in this country a certain degree of epithelial proliferation with cellular infiltration was usually found even in the most fulminating cases. The authors themselves state, however, that the changes observed are not necessarily the most acute, but that they are entitled to suppose that the aplastic form will terminate more quickly than the cellular. In the more chronic forms the respiratory change is characterised by an inflammatory process accompanied by a cellular invasion of the exudate. Thus pneumonia results, varying in extent from peribronchial to lobar, often ending in necrosis, abscess, and gangrene. In the acute forms the authors, like many writers on influenzal pneumonia, were struck with the similarity of the lesions to those produced by the inhalation of poison gas during the war. They do not agree with Symmers as to any general similarity of the morbid process to plague pneumonia, any such appearance being due to some intercurrent affection.

The final chapter deals with the bacteriology of influenzal pneumonia. The majority of organisms found belonged to the so-called group of "mouth organisms," pointing to the fact that the bacteria have gained access to the lungs after it has been injured by some primary agent. Thus Types III. and IV. pneumococcus (mouth pneumococci) were frequently found in contrast to the infrequence of Types I. and II., which cause two-thirds of all cases of lobar pneumonia. On the whole, however, we are struck by the fact that no single micro-organism was found with any degree of constancy. The most frequent was the *Streptococcus hæmolyticus*, which was found in 11 out of the 82 cases examined; *B. influenzæ* was found on only three occasions. This latter result is in striking contrast to what was found in this country and by other workers in America. No details of the media used in the attempted isolation are given. This is a pity, because in the absence of details it is tempting to attribute the failure to the use of unsuitable media.

In their conclusions the authors consider that the respiratory lesions, whether primary or secondary, are responsible for the high mortality of the disease. The lesions are primarily produced by the true ætiological agent (unknown) and only secondarily by an invasion by the mouth bacteria and inspired air. Although all may not agree with certain of the views expressed in the monograph, a careful study of the volume will prove of great value to those who are working practically in pathology. The illustrations, many of which are in colour, could not be surpassed. In conjunction with the letterpress these illustrations give a very realistic picture of the lesions; indeed, the monograph might be taken as a standard for all such publications.

### ANATOMICAL TABLES.

*Des Andreas Vesalius sechs anatomische Tafeln vom Jahre 1538*, in Lichtdruck. MORIZ HOLL u. KARL LUDHOFF. Leipzig: J. Ambrosius Barth. 1921. Pp. 12 and 6 plates. M.60.

THIS work was produced in association with a Vesalian quater-centenary celebration by German biologists, who claim the great anatomist—on rather slender grounds—as a German. It contains a short historical introduction by Dr. Ludhoff, followed by an anatomical review of the plates by Dr. Holl, and then come the reproductions of the tables. These plates are not well known in England. Sir William Stirling-Maxwell published privately a good edition of them, with the frontispiece, which is not given in the present work, and there is a presentation copy of this edition in the British Museum. The plates were the earliest ones issued by Vesalius for the use of his students, shortly after he went to Padua, and deal with the portal system and organs of generation, the vena cava and chief veins, the heart and aorta, and three views of the skeleton. They were drawn by Stephan de Calcar. The tables, with their legends and notes, and a dedication to Narcissus of Parthenope, are reproduced on a reduced scale.

The thanks of those who find interest in the records of the great dead are due to the compilers and publishers for their labour and for the excellent production resulting therefrom.

### RADIATIONS FROM SLOW RADIUM AND THEIR THERAPEUTIC VALUE.

By JOHN B. KRAMER. With a Note on their Therapeutic Value by JOHN HALL-EDWARDS, L.R.C.P. Edin., F.R.S. Edin., late Major R.A.M.C. London: Baillière, Tindall and Cox. 1921. Pp. 105. 12*s*. 6*d*.

IN the author's preface we read, "For want of a better name I have christened the radio-active preparation with which I carried out my experiments 'Slow Radium.'" He might with more propriety have called it impure radium; how impure the preparations are we are not told, but from data given (p. 82) we may deduce that the ordinary radium salts of commerce are several thousand times as concentrated as those used by Mr. Kramer. It is difficult to believe that Mr. Kramer's object has been "to offer to the medical profession a concise handbook in the introductory study of the modern electron theory, including the principal characteristics and the physical constants of radium radiations"; for about four-fifths of his contribution are concerned with diagrams and photographs of the distribution of radiation in the neighbourhood of impure radium

applicators, and the remaining fifth to a garbled account of the properties of radium and its rays. Of radium we are told that "After 2000 years the radio-activity ceases and the 'temporary' element of radium has been converted into the element of lead, still composed of fabulous millions of electrons in temporary stable condition." Of the gamma rays we learn that they travel at *almost* the same speed as light. Chapter III. concludes with an erroneous illustration of the magnetic deviation of alpha and beta rays. The author willingly strays into other fields, where, however, he is no more fortunate in the avoidance of errors. On p. 35 we read that "the intensity of the X rays depends on their various speeds, and they are therefore classified into soft, medium, and hard rays." Those who read this book will seek in vain for the electronic theory; they will find some physical quantities, correct and incorrect, and a number of opinions as to the effect of rays of various kinds upon the tissues.

PRACTICAL PHYSIOLOGICAL CHEMISTRY.

Seventh edition, revised. By PHILIP B. HAWK, M.S., Ph.D., Professor of Physiological Chemistry and Toxicology in the Jefferson Medical College, Philadelphia. London: J. and A. Churchill. 1921. Pp. 675. 24*s*.

THIS up-to-date edition of a well-known text-book will be welcomed by many. Among the valuable additions are the Folin-Wu system of blood analysis, the Van Slyke technique for determination of alkali reserve, and a large section dealing with the subject of vitamins. The student exercises on the latter subject can, however, not be performed in this country, because a licence for animal experiments, together with one or more special certificates, is necessary for *experimental* feeding with *any diet whatsoever*. In this and other respects the book is essentially an American work, and though English orthography is introduced, the viewpoint is consistently American. This is clearly brought out by a sample of the copious references: out of 100, chosen at random, we found 59 to American papers, 35 to German, 5 to English, and 1 to Russian. But while the use of the book for elementary teaching is open to doubt, for senior students or young research workers, to whom the American point of view is valuable if their outlook is to become broad, Prof. Hawk's work is one of the best of its kind. It represents well the practical aspects of problems in which American workers have attained distinction. There are 192 illustrations, most of them very well reproduced; the use of yellow ink (as in Fig. 29) is to be condemned, as it is almost invisible by artificial light. Some rather more logical arrangement of the exercises might with advantage be introduced; thus on p. 313 the student carries out the determination of the plasma alkali reserve, and then some experiments on alkali tolerance; after this it is somewhat of an anti-climax to demonstrate the fact that expired air turns baryta water turbid (p. 328).

THE NEW PSYCHOLOGY AND THE TEACHER.

By H. CRICHTON MILLER, M.A., M.D., Editor, "Functional Nerve Disease," Hon. Director, Tavistock Clinic for Functional Nerve Cases. London: Jarrolds. 1921. Pp. 232. 6*s*.

THIS book, addressed to teachers and members of the public, gives a readable account of the application of psychological theory to education. The author, whilst admitting the debt owed to the work of Freud, refrains from using the term psycho-analysis in his title since he is unable to accept all the conclusions of the Freudians. Discussion would often be simplified if this sound distinction were more generally followed.

In his early chapters Dr. Miller shows the need, and the difficulty, of combining respect for racial experience with a critical attitude towards authority, and towards the tendency to escape from reality into phantasy which characterises the child and becomes a neurosis in the adult. The chapters on Emotional Development are perhaps the most useful, though one would like to know whether the presumption of a homosexual phase in the boy from the age of 8 to 18 is the personal view of Dr. Crichton Miller. He is certainly right in demanding that the boy should be protected from a demonstrative mother during that period; in fact, the chief value of the new psychology to education is in the analysis of the motive of the adult, whether teacher or parent. Dr. Miller develops the views of Jung in his chapter on Dream Symbolism, taking the dream as a guide to individual development. The chapter gives the impression that the interpretation of the dream comes from the analyst and not from the patient, and strengthens a common criticism of analytical technique. In the preface annoyance is shown towards those "pioneers and their followers" who claim that the would-be analyst must himself be analysed; but on page 180 we read that the amateur, whether he holds a medical degree or not, is likely to be suffering from an unconscious motive of his own, and, a little further on, that the person who has studied his own dreams for some years may have reached the position of being able to help some of his friends. These remarks seem to support the claim of the pioneers.

The book fulfils its purpose of giving an account of new psychological theories in a simple manner, though with limitations which the author admits such an aim must impose.

HANDBOOK ON LEPROSY.

By ERNEST MUIR, M.D., F.R.C.S. Edin. Cuttack, India: R. J. Grundy. 1921. Pp. 118. 7*s*.

THIS is a useful little book by a well-known authority on leprosy in India. The volume is intended to serve as a handbook for the general practitioner in the endemic areas of the disease, and supplies a distinct want. The clinical descriptions of leprosy are summarised briefly, and are therefore easily memorised. This book differs from other treatises and text-books on leprosy in the amount of space devoted to consideration of the main source of chaulmoogra oil, the *Taraktogenos kurzii* and various species of *Hydnocarpus*, from the seeds of which the chaulmoogra and hydnocarpus oils are extracted. This section is illustrated by photographs and drawings of the trees and fruit. The seeds of *Gynocardia odorata*, often stated to be the source of chaulmoogra, apparently do not on extraction give the true oil. The section on treatment is of value, and the latest method of administering these oils and their derivatives is described, the Dean treatment, as carried out in Honolulu, receiving adequate consideration. The concluding sections contain information upon the prophylaxis of leprosy and the organisation of leper asylums, colonies and hospitals, and plans for future research on this disease.

It would greatly add to the value of the book if the rather imperfect snapshots of clinical aspects of the disease could be replaced by more artistic photographs.

## JOURNALS.

BRAIN. Vol. XLIV., Part 3. Studies of Cerebral Function in Learning. III., The Motor Areas, by K. S. Lashley.—The experiments recorded show that the albino rat is able to acquire somæsthetic-motor habits after destruction of the electro-stimulable cortex and the caudate nucleus. Visuo-motor and simple somæsthetic-motor habits which are acquired before the operation are retained after the destruction of these structures and probably after the section of occipito-lenticular fibres. It is clear, therefore, that neither the cerebral-motor areas nor the subcortical nuclei are directly concerned with the performance of learned activities. Combined destruction of the motor area and the caudate nucleus results in relatively permanent motor disturbances resembling hemiplegia in monkeys. Evidence is given that the difficulty is primarily in assuming new attitudes, and it is suggested that the primary function of the cerebral motor structures in the rat is the regulation of postural

reflexes. Existing evidence does not seem to exclude such an explanation of the function of the stimulable cortex, even in man.—A Psychological Inquiry into the Nature of the Condition known as Congenital Word-Blindness, by Lucy G. Fildes. Experiments were carried out on 26 children who were first tested for their general mental capacity and reading power, and then were subjected to experiments which aimed at investigating ability in the various forms of mental activity known to be involved in the complex act of reading, in so far as that act implies the power to recognise words, letters, and figures previously taught. As a result non-readers were found among all degrees of intelligence. The idea that deficiency in reading power is always an indication of a deficiency of a more general kind is, therefore, by no means supported by the psychological facts. Nothing was found to indicate the existence of any such region as a "visual-word centre," or to show that ability to read depends on the power to store up images of words. The experiments support the theory that "word-blindness" is but one aspect of a more general, yet still in itself specific, defect in either the visual or auditory regions or in both.—A Proprioceptive Reflex and Clonus as Studied in the Spinal Frog, by Kanshi Sassa.

BRITISH JOURNAL OF CHILDREN'S DISEASES. Oct. to Dec., 1921.—In a paper on Cephalic Bruits in Children, Dr. G. F. Still describes a condition which has received little if any attention in most recent text-books on diseases of children, partly, as he says, because the bruits have no recognised pathological significance, and partly because they are supposed to possess no clinical interest. In a historical retrospect Dr. Still shows that the condition was first described by Fisher, of Boston, in 1833, and later by Whitney in 1846, both of whom regarded the bruits as of pathological significance and indicative of some organic affection of the brain. Osler, who recorded a case in an otherwise healthy child in 1880, pointed out that the extreme ages at which the murmur prevailed were the third month and the sixth year, the majority occurring in the second year. The case under his own care was exceptional, as the bruit was present at 7 years. Subsequent observers found that the murmur was so frequently audible in children during the first three years of life that its pathological significance was open to doubt. Dr. Still, who has made a systematic examination of 200 children for the presence of the bruit, has found it in 13 out of 130 with the fontanelle closed, and in 17 out of 70 with the fontanelle open. The youngest case in which it was heard was aged 6 months, and the oldest 15 years, but no patient beyond that age was examined. Only four cases were met with above the age of 4 years. Dr. Still was unable to connect the bruit with any particular morbid condition, all sorts of diseases being present in the 30 cases in which it was detected, such as scurvy, epilepsy, achondroplasia, nephritis, asthma, congenital syphilis, congenital heart disease, acidosis and dyspepsia, while four had nothing at all. Dr. Still thinks that tortuosity of the carotids at the base of the skull in infancy is a factor in the production of the murmur, and that some straightening of the course of the artery occurs with increase in the size of the skull. He suggests that persistence of the bruit beyond the usual age is due to unusual thinness of the bony wall of the carotid. The bruit has a systolic blowing, sometimes almost twanging, character, very different from the continuous hum of a venous bruit.—In a paper entitled "Leucosarcoma, Lymphosarcoma, Lymphadenoma, and Infectious Mononucleosis," Dr. Parkes Weber describes instances of these conditions observed by himself, with a review of the literature.—In a paper on the Nervous Child, read before the Philadelphia Pediatric Society, Dr. Charles W. Barr divides neurotic children into two great classes, according as they belong to the unrestrained or restrained emotional type. He maintains that both types are victims of an abnormality in personality.—Dr. Donald Paterson describes a case of Renal Dwarfism, which was remarkable for the fact that the bony changes dated definitely from birth.—Dr. Eva Morton reports a case of Morbilli Bullosi in a girl, aged 7½ years, who was stated to have had measles two years ago. After a prodromal stage of three days, in which the symptoms were headache and discharge from the eyes, a rash resembling measles developed on the trunk and limbs. On the following day, 24 hours after the first appearance of the rash, a bullous eruption developed, beginning on the chest and rapidly spreading in fresh crops to other parts of the body. On admission to hospital on the sixth day of disease, in addition to a generalised morbilliform rash, the face, trunk, and limbs were covered with bullæ of all sizes up to an inch in diameter, many of which had ruptured, leaving the epidermis wrinkled and hanging in shreds, exposing deep-red patches of bare skin. Death took place on the seventh day of disease. Apart from a bronchopneumonic condition of the right lung, nothing abnormal was discovered post mortem. Dr. Morton refers to the scanty literature on the subject, all the previous cases, with the exception of one, reported by Neff in the *American Journal of Diseases of Children*, having been published by German writers.—The Society Intelligence contains reports of cases of pædiatric interest from various sections of the Royal Society of Medicine, and a record of recent meetings of the Philadelphia Pediatric Society and the Société de Pédiatrie of Paris.—The abstracts from current literature are devoted to diseases of the nervous system, otology, rhinology, and laryngology.

# New Inventions.

## AN IMPROVED X RAY PLANT.

THE unwonted strain which the Erlangen technique for the treatment of cancer puts upon all parts of the X ray plant has been well met as regards the generating apparatus, but only indifferently where tubes and tube stands are concerned. To obviate the disadvantages of the old models of apparatus I have modified for purposes of treatment a method already used in certain American diagnostic outfits. The modification consists of a tank 4 feet long lined with 3 millimetre lead, mounted upon a massive wooden trolly, which is provided with rubber-covered rollers, so that it can be slowly moved from the wall into the middle of the room when necessary. The tank is filled with insulating oil, and contains a new model Coolidge tube, 31 inches long, which is capable of withstanding a potential of 300,000 volts. The oil serves to prevent any surface discharges to the glass, and keeps the latter absolutely cool. The lead lining of the tank protects the operator. In the bottom and sides of the tank are various "windows" of zinc, covered with lead blinds when not in use, so that cones of radiation can be obtained at any desired angle. The patient is placed on a couch which is adjustable both horizontally and vertically, and any desired relationship between patient and tube can be obtained. The trolly is 6 feet wide and 4½ feet high. All high-tension leads are heavily insulated, and are supported by posts, not by suspension from above, so that there is no risk of the leads falling. The whole of the tank and stand may be touched at any part without any shock being felt; it is so massive that collapse of the apparatus upon the patient is impossible. If the tube breaks, the white hot metal is extinguished at once by the oil, and can do the patient no harm, nor can sparks jump to him; an hysterical patient could actually kick the stand without any ill-effect resulting. I have tested the apparatus for over four months, and it has fulfilled all expectations.

The apparatus has been made for me by Messrs. Schall, of New Cavendish-street, London, W.

Harley-street, W. F. HERNAMAN-JOHNSON, M.D.

# THE LANCET.

*LONDON: SATURDAY, JANUARY 28, 1922.*


## The Influenza Epidemic.

OUR readers will have seen a communiqué from the Ministry of Health, to which wide publicity was given last week, dealing with the present recrudescence of influenza. On the epidemiological features of the position we have recently commented,[1] and need add no more except that, although it is not true that the date of the recrudescence could have been, or in fact was, foretold with meticulous accuracy, it is true that something of the kind was anticipated by both official and unofficial epidemiologists, and a special emergency intelligence service was reintroduced many weeks ago. With regard to the clinical aspects of the epidemic, a good deal of prominence has been given in the daily press to the occurrence of peculiar rashes. According to our information this feature of the epidemic has been common in several districts but not universally; in two county boroughs the rash is described as closely simulating the exanthem of scarlet fever, in other places it is said to have resembled roseola or rubella. The so-called gastro-intestinal type, although rare in places, has been very widely prevalent in others, lumbago or backache of a severity almost suggestive of small-pox having been an initial symptom in many cases. As in previous outbreaks, the presence or absence of pulmonary complications determines the prognosis. In his chapter on the clinical features of the great pandemic,[2] Dr. HERBERT FRENCH wrote as follows:—

"Broadly speaking, I should say that out of 1000 individuals stricken by the disease fully 800 had no more than an ordinary attack of uncomplicated 'influenza,' a little more severe perhaps than the 'three-day fever' of June, 1918, but not any worse than simple influenza as it may occur at any other time. It was the remaining 200 who were so much more seriously ill, with 'pneumonic' symptoms added to those of simple influenza, and of these about 80 died. The most dreaded symptom was the heliotrope cyanosis; it developed in less than half of the pulmonary cases, but once it became definite the prognosis was so bad that I should say out of every 100 'blue' cases 95 died."

In the latest recrudescence pneumonia, nearly always of the bronchial type, is reported from most districts as a complication, but in practically every report we have seen it is specifically stated to be rare. In these cases of broncho-pneumonia the onset may be sudden, but this has been unusual; the temperature has been high, 103° to 104° F., but the pulse-rate not unduly increased. The early physical signs in the chest have been very variable; in cases seen at a later stage patches of consolidation, apparently at first discrete, had coalesced, and in some practically the whole of one lobe was involved, the condition simulating a lobar pneumonia, but distinguishable from this by the circumstance that a patchy consolidation or a diffuse bronchiolitis was present in the other lung. These findings, which are from the notes of a London observer, seem to be typical of current experience.

Very few cases of heliotrope cyanosis have been recorded but, and this is a significant point, of those which have been observed a majority recovered. We have seen the notes of one case in which, on Jan 4th, the patient was observed to be purple, with lips and pinnæ bluish; dyspnœa was present. On the following day a quantity of blood-stained sputum was brought up, the temperature began to fall and gradually reached the normal by Jan. 10th, while the colour faded. On Jan. 13th the temperature was 97·5°, pulse 80, respirations 26. In this case there were large areas of broncho-pneumonic consolidation in both lungs, and, had it not been for the diffuse and patchy smaller areas of consolidation in part of one lung, the case might have been diagnosed as one of double lobar pneumonia. Speaking generally, it may be said that the clinical type of the severer cases approximates more to what we saw in the influenzas of 1891 and following years than to recent experience. So far as the milder and far more numerous type of case is concerned, we should say, adopting antique phraseology, that the epidemic "constitution" is no longer "catarrhal" but "gastric" or "nervous." A complication of some gravity, although not threatening life, which has been noted, has been a tendency to infection of the accessory sinuses and otitis media.

Reports on the bacteriology of the epidemic are not concordant and we must await more evidence before adjudicating the claims of various morbid agents. In the meantime we refer readers to the important monograph reviewed on p. 184, on the Pathology of Influenza, from the Yale University Press, which supplements Sir FREDERICK ANDREWES's impartial survey in the official report of 1918-19. The Ministry of Health now express the opinion that available vaccines are of value in preventing complications, but cannot be relied upon to ward off attacks of influenza. This is, we think, the general opinion of those who have examined the evidence. It is, of course, quite unreasonable to use the non-success of vaccination in one country with one particular vaccine as evidence that a different vaccine in another country is useless. It is equally idle to cite short series of cases in which the incidence of attack upon vaccinated persons has been very slight as proofs of the general validity of the method. Unfortunately it is extremely difficult to gather statistics in a civilian population which comply with the requirements of an adequately controlled test. Of the simpler methods of prophylaxis, such as gargling and insufflation, the latter appears to be the more important. If permanganate is used, the salt-containing solution advised by the Ministry of Health should be recommended, being less irritant than an aqueous solution. Although the outbreak is a serious one, there are no present indications that it will attain the dimensions of even the third wave of the 1918–19 sequence, and there is reason to think that in London the maximum has been reached.

[1] THE LANCET, Dec. 3rd, 1921, p. 1171.
[2] Report on the Pandemic of Influenza, 1918–19 (Stationery Office, 1920), pp. 66–102.

## Medical Treatment in Poor-law Institutions.

THE recent case of a child, sick with pneumonia, being carried from hospital to hospital and eventually admitted to a Poor-law infirmary sets forth alike the existing lack of hospital accommodation and a ready method of making it good. A demand that surplus beds in infirmaries should be used to supplement those in voluntary hospitals is gaining wide currency. How far the demand has already been met appears in the second annual report of the Ministry of Health and may surprise any who have not given close attention to the subject. Though the abolition of the Poor-law and the transfer of its functions may not at the moment be practical politics, there is

abundant evidence of the extension of medical service to non-pauper classes. Apart from such criticised municipal enterprise as the establishment of municipal hospitals at Bradford and Willesden, there have been less observed signs of activity in a similar direction during the past year in many Poor-law institutions. Almost all the institutions lent to the army during the war have now been restored to the guardians, who have re-equipped and reopened them as hospitals, taking the opportunity of getting rid of undesirable associations in dropping the old name of Poor-law infirmary. And the change is not in name merely. In some instances, valuable additions were made during the period of military tenancy to the accommodation and equipment of these hospitals, and greatly improved facilities for specialised treatment became available. A recent survey of the 54 separately administered Poor-law hospitals (as we shall now call them) has satisfied the Ministry of Health that the majority of them would be capable of development on general hospital lines. In the towns many of the larger Poor-law hospitals show a surplus accommodation above the needs of the sick paupers, and in some cases the voluntary hospitals with shortage of beds have approached the guardians for the use of beds in the Poor-law hospital. In one instance the St. Luke's Hospital, Bradford, formerly a workhouse of the Union, has been transferred to the Corporation of Bradford for general hospital purposes, the Union reserving a proportion of beds for the pauper sick. On March 12th, 1921, 556 of the 884 beds available were occupied, 316 by Poor-law cases, 200 by municipal cases, and 40 by service pensioners. Boards of guardians, whose institutions have been used during the last few years for soldiers, service pensioners, and others have become accustomed to the idea of treating new classes of cases, and the services rendered during the war have materially improved the standard and reputation of the larger Poor-law hospitals. Where the cases treated were in fact eligible under the laws relating to the relief of the poor, sanction was necessary. Qualification for poor relief does not per se exclude insured persons; many workers are brought below the poverty line by prolonged illness and their distress is not always relieved by insurance sickness benefit. Relief thus afforded to the strain upon the general hospitals has met with entire approval on the part of the central authority, but for the opening of Poor-law beds to paying patients sanction cannot be given without statutory authority which the Minister of Health does not actually possess. From the tone of his report it would appear that his department would be glad to have this authority. Protests from medical organisations made it necessary to point out to guardians the limit of their statutory powers. But the department itself suggested to guardians the holding of conferences with local medical associations and hospital committees with a view to selecting suitable cases.

A further remarkable development has taken place in the direction of specialisation of Poor-law institutions. The Alder Hey Infirmary of the West Derby Board of Guardians now includes special departments for orthopædic work. In several cases arrangements have been made with the Ministry of Pensions for the treatment of pensioners, and in others the guardians are coöperating in the arrangements for the treatment by the sanitary authorities of venereal disease. A good example of such specialisation occurs at Bristol where there are three institutions with accommodation for a total of 1700 patients. Acute cases are treated in the Southmead institution, which is now administered as a separate infirmary under medical supervision. The remaining institutions are used for adult mental cases and the aged infirm and able-bodied respectively. At the Crescent-road Infirmary, Manchester, more than 100 beds have been set aside for cases of venereal disease, while the medical officer of the V.D. clinic has been appointed as visiting specialist to the infirmary, with a resulting increase in the proportion of patients retained for a complete course of treatment. Sick children are specially provided for at the Booth Hall Infirmary, Manchester, and at the Alder Hey Infirmary. Certain Unions have gone far towards pooling their institutions in order to secure better classification and increased specialisation. This has happened with neighbouring boards in Lancashire and the West Riding of Yorkshire. At the Belmont-road infirmary of the West Derby Union over 90 beds are reserved for venereal disease and 100 for skin cases from the area of that and neighbouring Unions. The issue has been resumed of regulations for separate administration of infirmaries for the sick, a practice interrupted by the war. The infirmaries belonging to the Parish of St. John, Hampstead, and to the Unions of Birkenhead and Barnet are now independent in this sense. Similar orders are in course of preparation for the Forest Gate Sick Home of the West Ham Union and sick wards of the Aston-under-Lyne Union. The substantial effect of such regulations is to place the medical rather than the lay officers of the guardians in charge of the administration of the institution.

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The agenda placed before the conference made a long list, and many who would have liked to take a personal part must have departed unheard and disappointed in spite of the efforts of an excellent chairman. An attempt to cover in two days most of the diverse aspects of lunacy administration was perhaps over-ambitious, especially when doctors and laymen met in numbers comparable to the parliament of a nation. Moreover, since the plan of the conference excluded all resolutions other than formal acknowledgments to Sir ALFRED MOND as opener, Sir FREDERICK WILLIS as President, and the London County Council as hosts, the opinions of those members who did not speak had to be gauged by standards other than those of direct measurement. There can be no doubt, however, that practically unanimous agreement was reached as to one of the most important points considered, the desirability of facilities for early treatment (in-patient and out-patient), without certification, at mental and at general hospitals. The financial aspect of the alterations in function and probably also in structure involved in this far-reaching recommendation was not discussed, but that the decision was arrived at by responsible laymen in association with medical men raises the hope that local or other authorities will eventually be prepared to vote the money required. The need of some official body responsible for guarding the interests of early cases of mental disorder, when the law is altered to permit of their reception, is undisputed, but the conclusion arrived at by the conference that the Board of Control is the most suitable body to perform this function may meet with criticism. The allocation of this duty to boards of mental hygiene, the establishment of which in different areas throughout the country was proposed late in the conference by Lieut.-Colonel J. R. LORD, would probably be more to the public taste. These boards, composed of lay and medical members elected by each county or borough authority having charge of the insane, would be in a position to advise the Board of Control and the local authority on practical measures applicable to local conditions. They would initiate and supervise arrangements designed towards the prophylaxis of insanity, including provision for the treatment of slight and incipient cases and for voluntary boarders; towards after-care and the affiliation of mental with general hospitals; and towards the organisation of consulting and special services. The standards of training for medical and nursing staffs would also be a matter for such boards. In fact, Colonel LORD'S proposal implies a partial delegation of responsibility for the conditions in each of the areas, which should be as few as possible, to these committees. The principle of the extension of the system of voluntary boarders in mental hospitals apparently met with the unqualified approval of the conference, and it would seem that its adoption would be expedited by the acceptance of the area scheme.

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# Annotations.

"Ne quid nimis."

## CONSCIOUSNESS.

OF late years the study of mental processes has led to fresh ideas about consciousness, which at one time was regarded as conterminous with mind, whilst a system of physical memory-traces was assumed to exist in the brain, on the stimulation of which the memories reached consciousness and became part of the mind. But we believe now that mental processes, sometimes of a complicated nature, go on within us and are not associated with awareness; hence arises the conception of the unconscious mind, an awkward combination of words which psycho-analysts avoid by speaking of the "unconscious," introducing also a pre-conscious which is in more immediate contact with the consciousness than is the unconscious proper. According to these views, which are of importance in the study of conduct, the distinguishing function of consciousness is that of awareness, whilst unconscious processes of great moment, especially in psycho-neurotics, can be carried on with only the results appearing in consciousness. Dr. Varendonck, in "L'évolution des facultés conscientes,"[1] gives us a study of the pre-conscious processes and the extent to which they reach consciousness. He describes two forms of memory: the reduplicative, a simple registration which can be reproduced integrally but without enrichment by the mind—a parrot-like repetition; and a synthetic memory, in which selection and combination are active. He demonstrates, with the clearness characteristic of French writers, that these memories are a function of the pre-conscious, and only when attention is directed to them do they enter consciousness. Perception is, he shows, carried out by the pre-conscious, and different images are called up of which only the last—the one that gives its proper character to the sensation—crosses the threshold of awareness. Just as a man pays attention to external objects that are useful to him and ignores others, so the consciousness selects that product of pre-conscious synthesis which suits the conscious aim of the moment. Applying this to the higher animals, Varendonck decides that in them consciousness is intermittent and only comes into play when habitual acts do not suffice for adaption. A different view is offered by Prof. Kaufmann-Halle in "Die Bewusstseins-Vorgänge bei Suggestion und Hypnose."[2] He speaks of the waking will, associated with close attention and an inhibition centre, all in the highest stage of consciousness, the next stage being that of ordinary ("alltags") consciousness, with automatic actions, habits, and suggestibility. In these stages we recognise the consciousness of Varendonck with pre-conscious intrusions, and below them are described five other stages ranging from moderate tiredness to lethargy, in which are found the phenomena of hypnosis, phantasy, memory, hysterical symptoms, and the like. The aim of the book is to prove, chiefly by the persistence of amnesias for hypnotic states and suggestions, that there exists a rich inner life not accessible to unaided self-observation. The book gives an impression that the professor, whose use of hypnosis is purely for purposes of suggestion, is only attempting to harmonise old methods with new theories; but he succeeds fairly well.

## RECENT SURGERY IN FRANCE.

IN a recent issue of the *Archives de Médecine et de Pharmacie Militaires*, Prof. H. Billet, of the Army Medical School at Val-de-Grâce, continues his periodical review of the progress of surgery in France. He tells how valuable he has found vaccine therapy in cases of osteomyelitis other than septicæmic, and particularly if caused by staphylococci. He also notes that it is useful in furunculosis as Wright first taught. He himself treats his cases from the beginning with a mixed vaccine, and then, when he has learned which infection predominates, with the appropriate stock vaccine; by this time cure has probably come in sight, but if there is need he will now use an auto-vaccine prepared by the laboratory. In the last eight months he has had hardly any but successes, and cases recover far more rapidly than in old days. Yet no one knows exactly why, nor why it is staphylococcal infections that profit more than others by vaccino-therapy. With regard to the treatment of empyema for this, in the acute stage, only aspiration is recommended. Incision or rib excision should certainly not be done before the pulmonary condition has begun to resolve, not until pulse and temperature are falling together (rectal temp. 100° F.), and the patient shows he is getting the better of the disease. Then the operation should be done, and under local anæsthesia. Such cases must not be kept in bed too long; the sooner they are up and being exercised the better. Shorten the drainage-tubes as quickly as possible and the wound should be healed in three weeks. Tuffier and Depage employ here the Carrel-Dakin treatment which Prof. Billet also recommends. He then talks of anæsthesia, and reports that in the last eight months he has practically given up using chloroform or ether, not because of fatalities in the theatre—he had not one among some 10,000 cases in the war—but because of the after-effects on the epithelium of the liver and of the kidney; he recommends gas and oxygen, and tells us that surgeons operating on patients exhausted by cancer of the alimentary canal find their operation results depend directly on the anæsthetic employed. Local anæsthesia evidently has great appreciation behind it in France to-day. Spinal anæsthesia is employed for operations about the perineum and pelvis, caffeine given intrathecally being useful in combating a faintness which may cause anxiety. Prof. Billet hints at a new local anæsthetic under experiment which will maintain its influence even for days.

## ON KEEPING WARM.

THE encouragement of epitheliomatous growths by the habitual use of the kangri in Kashmir has been for some time one of the most impressive instances illustrating the importance of chronic irritation in the causation of malignant tumours. These little fire-pots worn against the belly have no thermo-regulators and naturally in course of years a good many of the wearers burn and scorch their skin; in the scars thus produced a certain number of epitheliomas arise, while growths on the anterior abdominal wall in peoples who warm themselves in other ways are exceedingly uncommon. The association is indeed about as strong as one would expect to get in a human experiment. It now seems that the control experiment may be made among the same people. We learn from a most interesting account of the Church Missionary Society schools at Srinagar in Kashmir[1] that the abolition of the kangri is one of the planks in the platform of the Rev. C. E. Tyndale-Biscoe, whose work for the regeneration of the Kashmiris has achieved such wonderful results. Its relation to cancer is not mentioned; he objects to it on the broader and, as far as the young are concerned, more immediate grounds that it is lazy and effeminate, and that it is much better to keep warm in the severe winter which prevails in those parts by sliding on the ice and boxing. It was indeed, he says, the realisation that fire-pots on your stomach were not comfortable, when you fell wrong way up on the ice, that rang the knell of kangri. Presently, therefore, it may be possible to clinch the cancer argument by the experience that epithelioma of the anterior abdominal wall has disappeared since kangri went out of fashion. It will not be quite a clean experiment, for the devoted staff that labours in the schools have taught their

[1] Alcan, Paris, 1921, pp. 203, Fr. 18.
[2] Carl Marhold, Halle a. S., 1921, pp. 36, M.4.40 + valuta.

[1] Still Pegging Away in Cashmir. C. M. House. Salisbury-square, E.C. 1920.

pupils other things which might be of importance, for instance, to wash. Curiously enough, as is mentioned in the recent annual report of the Medical Research Council, the latest plan which Dr. Leonard Hill has devised to achieve his ideal of warm feet and a cool head in a stimulating atmosphere is an imitation of the kangri in the form of an electrically heated warmer worn under the clothes and suitably regulated. It sounds very comfortable and perhaps under the artificial conditions of large workshops might be excused by Mr. Tyndale-Biscoe.

## THE FIXATION ABSCESS.

THE fixation abscess has had little vogue in this country as a method of treatment, though on the continent it is used with, it is claimed, a considerable degree of success. The method is employed in the treatment of acute bacterial disease and consists in the subcutaneous inoculation of a small quantity, generally about 1 c.cm., of turpentine which, as is well known, causes the development of a sterile abscess when injected into the tissues. In favourable cases the classical clinical signs of inflammation are present at the site of injection within 24 hours, and in from four to six days the focus exhibits definite fluctuation. A small incision is now made, the pus is expressed, and the wound treated with hot fomentations until it dries up. Apart from the fact that a good deal of pain may accompany the formation of the abscess, there seems no serious drawback to this method of treatment, but, on the other hand, it cannot be said to rest upon any well-recognised scientific basis. I resumably it owes its value to the production of a leucocytosis, and it would appear to be particularly efficacious in such pulmonary complaints as are usually associated with an increased number of neutrophile leucocytes in the circulating blood. But that a leucocytosis invariably accompanies the formation of the turpentine abscess is definitely disproved by Dr. A. T. Todd in an article on the fixation abscess which appeared in THE LANCET of Jan. 7th. In two of the cases which he quotes full details of the daily blood examination are given, but no significant variation in the total leucocyte count can be distinguished following the formation of the abscess, though there is a sharp distinct shift to the left in the Arneth count. It is possible, therefore, that the benefit of the treatment may depend upon some factor other than the leucocytosis, and this is borne out by the results which have been obtained in cases of encephalitis lethargica. So far as is known the neutrophile leucocyte plays no part in the pathology of this disease, but it is claimed that remarkable cures have been obtained in it by the use of the fixation abscess.

Another aspect of this question is dealt with by Dr. T. H. C. Benians in an article entitled Septicæmia: the Selective Deposition of the Colon Typhoid Group of Bacteria in Fixation Abscesses in the current number of the *British Journal of Experimental Pathology*. If sterile gum tragacanth be injected into the subcutaneous tissues of an animal it forms a sterile abscess which eventually becomes absorbed and replaced by fibrous tissue. Various organisms can survive and multiply in this fixation abscess if injected along with the gum. Further, if, at the same time as the gum is injected into the subcutaneous tissues, a living emulsion in normal saline of certain organisms be inoculated directly into the blood-stream, the organisms can be recovered from the abscess after an interval of some three hours. This result is only obtained with any degree of constancy, however, when the organisms used are members of the coli-typhoid group; other microbes, such as staphylococci, streptococci, Pfeiffer's bacillus, and so forth, do not emigrate to the abscess, which remains sterile. In the experiments recorded in this paper other substances were used in the place of gum to form the abscess, but though they attracted numerous phagocytes, they did not cause the emigration of bacilli. Dr. Benian suggests that the readiness with which fixation abscesses produced by mucoid bodies attract organisms of the colon typhoid group bears a close resemblance to the infection of the mucous membranes of the body from the blood-stream which occurs in enteric fever. The exact mechanism of the passage of the organisms from the blood-stream to the abscess is at present obscure. It seems certain that they are not transported by phagocytes, but there is no positive evidence to show the means by which they leave the capillaries and are deposited in the tissues.

## SULPHÆMOGLOBINÆMIA.

Dr. V. P. Mason and Dr. F. D. Conroy,[1] of the Medical Clinic of the Johns Hopkins Hospital, maintain that the designation "enterogenous cyanosis," introduced by Stokvis in 1902, should be abandoned in favour of the terms "methæmoglobinæmia" and "sulphæmoglobinæmia," according to the nature of the abnormal hæmoglobin compound. The writers have collected 12 cases of sulphæmoglobinæmia in which the diagnosis was supported by sufficient evidence exclusive of a case observed by themselves. The ages of the patients ranged from 9 to 67. All but three, however, were over 20 and under 45. All except two were females. In each case the symptomatology was very similar. The patients complained of a variety of symptoms such as nervousness, weakness, palpitation of the heart, headache, and occasionally periods of nausea, vomiting, and abdominal pain before they recognised the blue colour of their nails and lips, or suffered from characteristic attacks. Constipation was observed in the majority of the patients. The duration of these prodromal symptoms ranged from a few months to 12 years. The characteristic attacks consisted in a peculiar sensation behind the sternum, accompanied by palpitation, giddiness, and nervousness, with marked cyanosis and dyspnœa. The attacks varied in duration and severity, but usually lasted from two to eight hours, and were followed by a sudden amelioration of the symptoms and a gradual diminution of the cyanosis. The diagnosis of sulphæmoglobinæmia is made by spectroscopic examination of the blood, which shows a definite dark band in the red near the orange if sulphæmoglobinæmia or methæmoglobinæmia is present. Methæmoglobinæmia is differentiated from sulphæmoglobinæmia by the ammonium sulphide test. If the band in the red persists after a few drops of a dilute solution of ammonium sulphide have been added, it is due to sulphæmoglobin. If it disappears it is due to methæmoglobin. The pathogenesis of sulphæmoglobinæmia is not yet elucidated, but the evidence is in favour of van den Bergh's opinion that sulphides formed in the bowel in some manner gain access to the blood. As regards treatment, frequent purging has relieved the symptoms in some instances, but in the majority of cases, including that reported by the present writers, permanent relief was not obtained.

## URINARY INFECTIONS.

THE treatment of infections of the kidneys and bladder is often difficult. Brilliant cures are effected in some cases, but the condition is apt to become chronic, and, when once an infection is firmly established in the urinary tract, the hindrances to be overcome before the patient can be counted free of it are immensely increased and may prove insurmountable. The subject claimed the whole attention of two recent meetings of the Royal Medico-Chirurgical Society of Glasgow, and discussion arose on such points as the following. The diagnosis of urinary infections can largely be avoided if the urine be carefully examined. Pus may not be present in more than small quantities, but it is usually evident and will certainly be found if the urine is centrifugalised and the deposit then examined with the microscope, whilst cultures of the urine will establish the nature of the organism. Dr. Leonard Findlay pointed out that this is one of the rare conditions in infancy in which rigors occur; toxic symptoms are

[1] Bulletin of the Johns Hopkins Hospital, December, 1921.

severe, and he expressed the opinion that in these cases the disease is primarily a pyelitis. In this view he had Dr. John Thomson's support. In older patients the clinical type is different: bladder symptoms predominate, and cystoscopic examinations carried out by Dr. Findlay and Dr. J. M. Renton go to prove, contrary to the text-book teaching, that in these cases there is more often a primary cystitis unaccompanied by pyelitis. In regard to the path of infection, Dr. Findlay believed that the blood stream was the common route. Prof. Carl Browning agreed that the passage of organisms from the blood stream to the renal pelvis occurs freely and that this probably represents an important manner of infection in pyelitis, though, as stated by Mr. Archibald Young, septic infection can undoubtedly spread upwards to the kidney by way of the lymphatics around the ureter. When the condition is chronic the fact that organisms are found not only in the pelvis but remote from it in the substance of the kidney suggests their immunity to any therapeutic agent which does not possess considerable penetrating powers, as was pointed out by Prof. Browning. It is, of course, an important part of treatment to remove all causes which predispose to infection, such as stone or enlarged prostate, and Sir Kennedy Dalziel drew attention to this aspect of the subject which is sometimes overlooked, cases being treated only with drugs when surgical measures are clearly indicated. Obviously, only an accurate investigation of each case of urinary infection can lead to successful treatment. The ordinary physical signs and the history given by the patient will often go far to localise the primary site of the disease, but probably the most helpful method of diagnosis is cystoscopic examination. This is usually not advisable in the acute stage, but as soon as it can safely be carried out the lesion can, in the great majority of cases, be accurately located. Dr. Renton remarked upon the value of ureteral catheterisation as a means of deciding whether the infection is present in one or in both kidneys. X ray examination may be necessary to exclude stone. None of the speakers were enthusiastic in regard to results obtained by vaccine treatment or pelvic lavage with silver preparations. In their experience hexamine was the most useful of the drugs available, but in acute cases the need of early and thorough alkalinisation of the urine was emphasised. With reference to the patient's dietary it should be remembered that milk must be restricted in all cases of infection of the urinary tract due to *B. coli communis*, for in the view of many clinicians the constipation which so often occurs in patients who take largely of milk is a condition which predisposes to infection by this organism.

## THE GROWING INOPERABILITY OF CANCER IN GERMANY.

CERTAIN statistics recently published by Prof. G. Winter,[1] of Königsberg, would suggest that the war and its aftermath have exerted a most unfavourable influence on the early recognition of cancer. His figures refer, however, only to cancer of the uterus, and to only one part of Germany. In 1913, 46·3 per cent. of the 54 cases of cancer of the uterus admitted to his hospital were inoperable, whereas of the 54 cases admitted in 1920, as great a proportion as 72·2 per cent. was inoperable. In 1913 he saw only seven "missed" cases—i.e, cases in which the appearance of definite signs of cancer had not led to immediate admission to hospital. In 1920 he saw 34 such cases, and all were inoperable. A study of the reasons why the early signs of malignant disease were overlooked showed that out of a total of 182 "missed" cases observed between 1911 and 1920, the fault lay with the medical attendant in 39 cases (21·5 per cent.), with the nurse or midwife in six, with a quack practitioner in one, and with the patient herself in as many as 136 cases. In this last category there were only six cases in 1913, as compared with 27 in 1920. Prof. Winter is at no pains to hide his opinion of the medical attendant who dismisses as unimportant, and without a careful local examination, complaints by women of irregular hæmorrhages and other signs indicative of malignant disease. As for the patient herself it would seem that the war and its after-effects have numbed just those faculties which the early recognition of cancer require. The lesson that Prof. Winter extracts from his findings is that unless educational propaganda about the early recognition of cancer are systematically drummed into all classes of society, intelligent interest in this subject wanes, and the facile doctrine, that if slight symptoms are steadfastly ignored they will vanish, is followed to the ultimate undoing of the patient. Prof. Winter draws an interesting comparision between the vigour of educational propaganda in East Prussia from year to year and the proportion of inoperable cases in the same years, and he shows that the relation between the two is remarkably close. As he points out in a more recent publication,[2] the neglect of the early signs of cancer is greater now than it was long before the war, when he first began his agitation for cancer education. And this state of affairs is the more deplorable as recent advances in radium and X ray treatment give the patient, who is treated early in the disease, a far better chance of complete recovery than heretofore.

[1] Zentralblatt f. Gyn., Dec. 3rd, 1921.

## THE FUNCTION OF THE TUBERCULOSIS DISPENSARY.

THE tuberculosis service is still young enough to be critical and active enough to be criticised; moreover, its work has not yet become standardised and even its boundaries are still in doubt. In Wales some precision has been reached. Circular T1, which has recently been issued by the Welsh Board of Health to the local sanitary authorities and county councils of Wales with respect to tuberculosis, will serve to emphasise certain things to which in England, as in Wales, attention cannot too pointedly be directed. These include the examination of contacts, the vexed question of early notification, and the need of securing coöperation with general practitioners in the work of the tuberculosis officers. Having regard to the tendency for the tuberculosis dispensary to become more and more a consultative centre—for which few of them, it may be remarked, are as yet completely equipped—rather than a place where routine and symptomatic treatment is given (that being left to the patient's own medical attendant) it is obvious that one of the essential justifications for the existence of the dispensary will come to lie more and more in its capacity to search out cases of hitherto unrecognised disease. The National Service Board report in this country, and the Framingham figures in the United States, have revealed the fact that something like 2 per cent. of the population suffers from tuberculosis in a recognisable form, and of these a large proportion is unknown to any authority. It is not necessary to labour the danger which faces the community from the presence in its midst of so abundant a source of infection. Obviously, no tuberculosis physician can attempt to tackle single-handedly a problem of these dimensions, and even in the best equipped areas the work of discovering the unsuspected but definitely affected patients will always fall far short of completeness. But at least some approximation to the ideal may be accomplished by the examination of the contacts of a recognised case considered as a focus of infection. Opportunely enough, the importance of this work has been demonstrated by Dr. A. Distaso and Dr. A. Carveth Johnson, of the Welsh National Memorial Association, in their paper, Epidemiological Studies in Human Tuberculosis, which appears in the current issue of *Tubercle*. In an area with, say, 300 annual notifications, however, the further examination of twelve or fifteen hundred contacts belonging to

[2] Deut. med. Woch., Jan. 12th, 1922.

the families of the notified is not a task to be lightly undertaken, even in those instances where the dispensary is fulfilling its function as a purely consultative centre: where it is a clearing-house for all types of diseases, as happens when its doors are thrown open to all and sundry who demand, it becomes an impossibility. It is here that the help of the general practitioner would be invaluable. He can in the first instance exclude large numbers of people who are quite obviously not in need of the services of the dispensary, and so free the physician to attend to those who are. But the general practitioner should have remuneration for his work in excluding these cases and thereby ascertaining those who are, possibly or probably, suffering from tuberculosis, for whom he desires a further opinion or treatment other than that which he is competent to give. Until the dispensaries, therefore, are freed entirely from much of the routine and unnecessary examination work which they do, and are equipped to perform their rightful function of a consultative centre, and until the general practitioner is paid a sum commensurate with the trouble he must take in attempting faithfully to discover the signs of tuberculosis in those of his patients who complain of symptoms that may be, and in all probability are, due to a thousand and one other causes, the service cannot hope to rise beyond the modest level assigned to it in a section of the daily press.

## POST-GRADUATE STUDY IN SOUTH-WEST LONDON.

THERE is no difference of opinion concerning the need of post-graduate study for members of the medical profession in active practice; assiduous reading of current literature cannot altogether take the place of the spoken word and the practical demonstration. A large central post-graduate centre will, however, hardly provide for the needs of all the 6000 doctors practising in and around the metropolis; for men from outlying suburbs would find it difficult to attend such a centre regularly. An interesting scheme for local post-graduate education is being developed in the south-western district of London. Over a year ago a committee was formed in the district composed of representatives from the South-West London Medical Society, the local branch of the British Medical Association and the visiting staff of the Bolingbroke Hospital, to which the superintendent of St. James Hospital was coöpted. With the sanction of the Ministry of Health, 12 consultants have recently been appointed to attend St. James Municipal Hospital as a regular visiting staff, the departments of general medicine, surgery, neurology, urology, otology, rhino-laryngology, pathology, gynæcology, ophthalmology, pediatrics, and dermatology being represented. Since there are 750 beds at St. James Hospital and 60 at the Bolingbroke Hospital it is clear that there will be no lack of clinical material for teaching purposes, and permission has been obtained for practitioners to follow the practice of both hospitals. It is proposed that the clinics of all the visiting staff to these hospitals shall be open to all practitioners in the district who care to avail themselves of those facilities offered. In addition to the ordinary clinical routine it is proposed to have at least one clinical demonstration or special lecture given weekly by one of the visiting staff. Additional arrangements will no doubt be made to suit the special needs of those who support the scheme.

The project will depend for its success upon the whole-hearted support of the doctors in practice in the south-western district. The hospitals mentioned are easily accessible from Wandsworth, Battersea, Clapham, Balham, Tooting, and Streatham, in which districts there are at least 300 practitioners. An inaugural lecture is to be given on Wednesday, Feb. 1st, at 4.30 P.M., by Sir Almroth Wright, F.R.S., at the St. James Hospital, Ouseley-road, Balham, on which occasion further details of the scheme will be announced.

## DENTAL REGISTRATION.

THE regulations of the Dental Board, adopted by the Board on Dec. 9th and approved by the General Medical Council on Dec. 15th, 1921, were finally approved by the Privy Council on Jan. 16th, and have now been made public.

The new Dentists Register, like the old one and the Medical Register, is to contain three lists—namely, United Kingdom dentists, Colonial dentists, and foreign dentists—entry in each case carrying the same privileges and responsibilities. The list is to record, as now, the name, address, date of registration, and qualifications or status, and, in addition, in the case of persons registered after July 27th, 1921, the number of the original certificate and the number of the annual practising certificate; for retention of a name on the Register is from henceforth dependent on the annual payment of a fee. In the sixth column of the list there will appear against every name the legend "Dentist, 1921," except for the small group of survivors of those who registered under Section 6 (*c*) of the Dentists Act of 1878 as being in practice at that date. Registration is still granted under the Act of 1878 to any dental graduate or licentiate of the United Kingdom or to anyone who can establish a title on the ground of colonial or foreign diplomas. This registration follows on application without further formality.

Under the Act of 1921 three other groups of practitioners become eligible for registration on compliance with certain additional formalities. In the case of persons who have been in practice for five of the seven years prior to July 28th, 1921, a statutory declaration must be made in prescribed form and sent with references to the Registrar, who satisfies himself by inquiry of the referees. This done, public notice of the application must be issued, objectors being given a calendar month in which to allege their grounds. If no objection is received, registration follows. Members of the Incorporated Dental Society have to fill in a form and also to supply references. Pharmaceutical chemists, or chemists and druggists, who claim registration on the ground of substantial practice in dentistry prior to July 28th, 1921, are required to make a statutory declaration and supply references. In the case of each of these three groups the Registrar, if not satisfied by the documentary evidence he receives, refers the application to the Registration Committee, and the Committee, if in doubt, in their turn to the Dental Board for final decision. Any dental practitioner of less than five years' standing, but who is yet engaged in the practice of dentistry as his principal means of livelihood, may express his intention of passing the prescribed examination not later than July 28th, 1923, and may then have his name entered in a separate list, to be transferred after passing this examination. The examination will be held at four localities—London, Manchester, Edinburgh, and Dublin—in July and November, 1922, and in April and July, 1923, should sufficient candidates apply. The fee for this examination is £5; the same fee is prescribed for original entry in the Register and for annual retention on the Register. Medical practitioners pay £2 only for registration. The regulations provide also for the registration of dental mechanics and of dental companies, and set out at length the formalities preceding removal of a name from the Register on disciplinary or non-disciplinary grounds, and for restoration thereto.

Copies of the regulations are to be obtained from the Registrar at the office of the Dental Board, 44, Hallam-street, London, W. 1, for 2*s*. 6*d*.

Dr. Norman Walker is proceeding to India to confer with the authorities of the Universities in India over the situation which has arisen in respect of the standards of education in the subject of midwifery and gynæcology.

# JOHN HUNTER AND PORTUGAL.

BY SIR JOHN BLAND-SUTTON, F.R.C.S.,
VICE-PRESIDENT, ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ONE of the last episodes of the Seven Years' War was an attempt on the part of France and Spain to invade Portugal. The French and Spanish forces were collected at Ciudad Rodrigo with the object of entering Portugal along the Tagus Valley. England decided to support Portugal and an expeditionary force of 7000 men was sent to Lisbon. The British and Portuguese troops, under the command of Count Schambourg-Lippe, an able officer trained in the school of Frederick the Great, assembled on the banks of the Tagus near the Spanish border. The outstanding feature of this almost forgotten campaign was the use, for the first time, of light cavalry which General John Burgoyne was instrumental in introducing into the British Army. Under Burgoyne the cavalry rendered distinguished service at Valencia d'Alcántara and in some sharp fighting at Villa Velha. The campaign was concluded by the Peace of Paris, 1763.

*Occasion of Hunter's Visit.*

Mr. Robert Boyne Home was the surgeon attached to Burgoyne's regiment of Light Horse. John Hunter was transferred from Belleisle to Portugal and took charge of a hospital. It is known from Hunter's letters, to his brother William, that he was anxious to leave Belleisle and wished to join the expeditionary force. He landed at Lisbon, July, 1762, and in a letter to William Hunter requests that his letters may be addressed to Lisbon. In November of the same year he writes from Portalegre. Very little is known of Hunter's doings in Portugal, and it has been supposed that he was able to add to his observations on gunshot wounds. There was little of this kind of surgery, but with a force of 7000 men there would be the routine of accidents and sickness incidental to a campaign in a foreign country.

It is certain that Hunter, whilst in Portugal, made observations on natural history, and collected specimens, some of which are in the Museum. He was deeply interested in birds, and in Portugal had an opportunity of seeing British birds making their way to warm southern climates in winter. In Hunter's day there was a keen discussion in England, known, among ornithologists, as the swallow-torpidity controversy, concerning the absence of swallows in winter. It was believed by many that these birds became torpid in winter as "the bear, dormouse, lizards, snakes, &c., do." In regard to this affair Hunter wrote: "Swallows of each sort are the same in every part of the world, which shows that they are birds of passage. This is not the case with other birds, that are not birds of passage; for we may observe that countries have their particular species of animals which differ from those of another country in some circumstances." He could speak with confidence in regard to swallows, for he saw swallows at Portalegre. There are persons to-day who believe that swallows hibernate, and there were men who believed that some migratory birds left our atmosphere for that of the moon! The most important results of Hunter's stay in Portugal relate to geology, stimulated by observations made on the plain of Alemtejo.

*A Typical Portuguese Town.*

As I could find very little information in books regarding these things, I went to Portalegre for the purpose of seeing the remarkable district which had for Hunter so much interest. It is a typical Portuguese town on the slopes of a steep hill about 20 miles from the Spanish frontier. It has a cathedral and a bishop. Roman remains have been found in the neighbourhood of the town, but there are many remnants of the Moorish occupation, including a ruined citadel. There is a well-preserved Moorish palace, now divided into a shop and a residence. I was allowed to enter and examine the characteristic chimney. The house was clean, neat, and adorned with flowering plants, and appeared a cheerful and comfortable place in which to dwell. Portalegre is like an Eastern town; houses with whitened walls, but grimy inside. Streets narrow, and paved with cobbles, and kept free from garbage by swine. A herd of pigs makes its way through the narrow streets in the early morning, gobbling vegetable remains, such as cabbage leaves and stalks, banana-skins, orange-peel and apple-parings, fragments of bread, and the like. The individuals in this herd of scavengers are distinguished by slits, or punctures, in the ear. The holes vary in size and shape, and resemble punctures made in tickets by railway inspectors. This indicates that the pigs in the herd belong to various proprietors though under the charge of one swineherd. The Alemtejan pig is a stolid animal, its skin is red and thickly covered with bristles, and furnishes excellent ham, but it has some intelligence. When a herd of swine returns from the town, or from a feeding excursion in an olive orchard, or an oak forest, each sow goes to her appointed sty, raises the latch with her snout, opens the door and walks in. Woe betide any sow that makes a mistake and enters the wrong sty.

The slits in the ears of the pigs recall the fact that Hunter at Earl's Court made an experiment to determine the effect of extirpating one ovarium upon the number of young produced. He selected two sows of the same colour and size. After removing an ovarium from a sow he cut a slit in one ear in order to distinguish her from the other sow which was kept as a control. He may have learned this ear-slitting trick in Portugal. Ear-slitting and ear-boring is a very old method; indeed, it is one of the judgments God gave to Moses—when a man wished to serve his master for ever he should be brought to a door-post and a hole bored in his ear with an awl. The ear has served as a useful property label for many centuries.

*Observations on Geology.*

The hill on which Portalegre is built is on a remarkable plateau called Alemtejo (spelt Alentejo in 1763). In an extraordinary tract, published about 50 years after Hunter's death, under the title "Observations and Reflexions on Geology," he refers to the extensive flat tract of land called Alentejo, which shows evident signs of its surface being covered by the sea. The surface of this plateau is strewn with enormous heaps of granite. Hunter discusses the probable mode of origin of the pyramidal heaps of huge stones which are so frequent on the plain. Some of the blocks he notes are pyramidal, "standing on their apex" and "so small is this apex that you could conceive that you could move them." Such fantastic piles, which have been likened to cyclopean masonry, are known in England as "tors." J. W. Gregory describes tors as residual hills left by the denudation of mountain ranges, which have been reduced, first by water when the rainfall was heavier, and then shaped by exposure to sun, wind, and storms in an arid climate.

Hunter had much time and scope for observation and reflection. Although the Alemtejo is a dreary plain and wide tracts of it are covered with "long heath, brown furze, anything," of which honest old Gonzalo would willingly accept an acre in exchange for a thousand furlongs of the sea, it puts on a wonderful appearance in the spring when the flowers appear. Even in December there were gorse, heath, and an occasional cistus, and wild roses in bloom. Most delightful of all, bright blue gentians peered at the sun from among the dry stems of the cistus-bushes. Formerly the Alemtejo was the cornland of Portugal. On the land to-day the wooden plough tipped with iron is used, as in the time of the Moors, and drawn by enormous oxen. In the cultivated tracts wheat, maize, oats, millet, rye, and lupins are grown.

The gardens around farmhouses abound in flowers. Geraniums creep along and over walls; jasmine and camellias delight the eye. Oranges, figs, and pomegranates not only ripen and delight the eye, but please

the palate. Agaves and prickly-pears (opuntia) grow side by side and replace the hedgerows of hawthorn and privet so common in England. The fig-marigold (mesembrianthemum) invests railway embankments with a green covering, replacing grass, and makes a delightful show when in full bloom. Even in December a straggling flower shows here and there amid the thick leaves. The politeness of the Alemtejan peasants is delightful, and the men, women, and children are kind to animals.

*The Portuguese Peasant.*

An idea of the simplicity of the Portuguese peasant may be gathered from an extract of a play by Gil Vicente, the popular satirist and poet of the sixteenth century. It shows that Lusitanian peasants, though revelling in a delightful climate, are as difficult to please as agriculturists in less favoured countries. The peasant complains to the priest that God has a spite against him, and rails in these terms :—

"God sends rain when I don't want it, and when I would have some rain the very stars shine like the sun. Now he swamps the newly-sown fields, or parches everything, or sends cruel wind or snow to kill the flocks, and if I would sue Him for damage done by lightning or thunder, hail or frost, who is to find out his dwelling to summon Him. He cares for no one and will do as he likes. But in spite, without a farthing to gain by it, sends rain in January and frost in April, and summer heat in February, mists in the month of May, and hail in mid-July."—Aubrey F. G. Bell : Portugal and the Portuguese.

*Fauna and Flora.*

Portugal south of the Tagus is the country of the evergreen oak and the cork tree. Forests of cork-oaks are interesting features of the Alemtejo. The cork-oak is about 30 feet high, and a forest of these trees may extend over many square miles. The trees themselves with their trunks divested of the thick bark resemble courtiers, dressed in trunk-hose, standing on one leg. As the bare tree trunk varies in colour according to the length of time it has been stripped of bark, yellow, red, or purple, the result is a fantastic scene. The trees are stately, not crowded, and the ground under them is covered with wild flowers of which the wood sorrel is conspicuous and almost universal. Black sheep with horns and black goats roam among the trees, guarded by dogs, and each shepherd has a loaded gun, for solitary wolves are not uncommon on the plain. Herds of pigs roam about the forest for acorns, and the swineherd, dressed in sheepskins, is followed by the pigs as sheep follow shepherds. The Alemtejo is the great country for cork, and stacks of cork are as common but much bigger than hay-ricks in rural England. The fertility of the plain, when properly cultivated and watered, is proved by the existence of fruitful vineyards and olive orchards. Visitors to Portugal are charmed with the magnificence of the pines and cypresses. The luxuriance of the blue gum-trees also arrests attention ; the first example collected on Cook's third voyage, 1776–9, was described by L'Héritier and named *Eucalyptus*, on account of the neat calyptra-like bud so characteristic of this tree. Avenues of eucalyptus trees are common along roads leading to towns in Southern Portugal, and their frequency may be ascribed to a belief in their supposed protective influence against malaria. These trees grow with great celerity and they are the loftiest trees in Southern Portugal. Many of the trees were in bloom at Christmas and small birds were busy among the blossoms. The star-like flower of the eucalyptus has many peculiarities, and one of them is the multiplicity of the stamens. I counted 1000 stamens on a single eucalyptus flower (*E. globulus*). Portugal must be favourable for them to have spread throughout the country within a century.

*Conditions of Residence.*

Portalegre is 140 miles by rail from Lisbon. In 1763 there were no railways, but there were fairly good roads for horses, mule-carts, and diligences. Portuguese mules are excellent. In such circumstances visits to Lisbon could not have been week-end affairs for Hunter. When he did visit Lisbon he could make good use of his time, for the sea on the coast line of Portugal swarms with fishes. The Lisbon fishmarket is furnished with an extraordinary variety of marine forms. Poor folk eat conger, shark, dog-fishes, and squid. Cuttles and octopods of large size are abundant, and it is amusing to watch the fish-women dexterously removing the ink-bags and pens from the cuttles. This operation stains their hands and clothes with ink and they look like printers. Large quantities of squid are used as bait by the fishermen. There is an excellent marine aquarium at Lisbon, named after Vasco da Gama, where it is amusing to watch an irritated cuttle-fish discharge its ink and conceal itself in the resulting watery nimbus.

A consideration of the facts connected with Hunter's residence in Portugal may be fairly stated in this way : He added to his experience of gunshot wounds and the administration of a military hospital, but the most important inspiration was an interest in geology. Hunter's remarkable observations on geology and on the distribution of animals, in relation to the antiquity of the world, led him to perceive that they were inconsistent with the creation of the world as described in Genesis. He abstained from publishing them on the advice of friends. On the Alemtejo and the surrounding country he had excellent inducement to study botany as well as geology, for he was among a subtropical flora, and at Lisbon he had opportunities of collecting specimens and adding to his knowledge of marine zoology.

Hunter's domestic life was influenced in an important manner by the affairs of Portugal, for Home, surgeon to Burgoyne's regiment of Light Horse, became his friend ; Hunter became engaged to Home's daughter, Anne. They were married in 1771. Mrs. Hunter's younger brother, Everard, became Hunter's house pupil, then his assistant, and finally executor. Sir Everard Home and Matthew Baillie founded the Hunterian Oration in 1813, and Everard Home was the first orator, 1814.

## IRELAND.

(FROM OUR OWN CORRESPONDENT.)

*The Irish Medical Association.*

THE Council of the Irish Medical Association is at length forced to take action with regard to increasing the annual subscription. It is, indeed, surprising that the Association has been able to carry on so long on its pre-war subscription of one guinea a year. The Council has now decided to call a special general meeting of the Association to consider a change of the by-laws proposing to increase the subscription to two guineas a year. It is clearly impossible that the Association could continue to give the present services to the members of the profession at the old subscription, and with the demands that are likely to be made on it in the period of transition and reconstruction in Ireland an increased rather than a diminished service will be required. It is likely that a certain number of members will resign if the proposal for an increase is carried, but the Council is encouraged by the example of the British Medical Association, whose membership increased during the year following the increase of the subscription from two to three guineas.

*Memorial to the late Dr. James Little.*

Last week the memorial tablet to Dr. James Little, erected by the Fellows of the Royal College of Physicians of Ireland on the wall of the entrance hall of the College, was presented formally to the College by Dr. Walter Smith on behalf of the subscribers, and was accepted by the President. The plaque exhibits a portrait head in profile, and is the work of Mr. Oliver

Sheppard, R.H.A. Dr. Walter Smith gave a very happy appreciation of the medical career and personality of Dr. Little, and a few words were added by the Provost of Trinity College. Dr. Little has not left much in writing for after generations to gauge of his position among the men of his own time, and it is just that there should be a permanent memorial in the College where he was loved so well.

## BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

*Death of Two Professional Leaders.*

Dr. Berthold Stiller, extraordinary professor of clinical medicine at the University of Budapest, died on Dec. 20th, 1921, in his eighty-fourth year. Prof. Stiller was director of the Jewish Hospital, Budapest, from 1874 onwards and his name is widely known by the discovery of the symptom, called after him, of loosening of the tenth rib as an indication of the presence of enteroptosis. His more notable works were: Nervous Disorders of the Stomach (1884); Diseases of the Spleen (1895); and Diseases of the Peritoneum (1897).

Dr. Ernst Jendrassik, professor of clinical medicine at the University of Budapest, also died on Dec. 20th, 1921, and his death is a loss to the scientific life of Europe. Born in 1858 at Kolozsvàr he worked as a young man with Charcot in Paris; he was appointed lecturer on the pathology of nervous diseases in the University of Budapest and afterwards held for nearly 20 years the post of ordinary professor of this subject. About 10 years ago a new clinic was built for and named after him. He was not only an eminent teacher, but also a first-rate practitioner, whose treatment and advice were sought after by patients from many foreign countries. His publications appeared in Hungarian, German, and French medical periodicals; he wrote on the localisation of reflexes, hypnotism, suggestion, and the pathology and treatment of organic heart lesions.

*A New Aspect of Professional Responsibility.*

In 1916 Dr. Joseph Reitzer, a gynæcologist of Temesvàr, was sued by a railway clerk for performing an operation on the latter's wife with intent to induce abortion, during which operation he was alleged to have perforated the uterus and brought about the young woman's death. After a trial lasting three days Dr. Reitzer was sentenced to one year's imprisonment. The complainant also demanded the costs of treatment of his wife, her funeral expenses, and an annuity for the education of his five-year-old child. This claim was not dealt with, but the complainant was advised to sue the doctor at another court. Dr. Reitzer appealed to a higher court, which acquitted him, the judgment being that it was not clear that perforation of the womb was due to surgical interference. The case then came before the High Court of Justice, which upheld the first decision and confirmed the sentence of imprisonment. Meanwhile, Hungarian rule had come to an end, and the Roumanians occupied the place where Dr. Reitzer resided; in the general upheaval the beginning of the term of imprisonment was postponed. The complainant once more sued Dr. Reitzer before a Roumanian court at Temesvàr. This court found all the claims to be just, and brought a verdict that Dr. Reitzer should pay every item excepting the annuity for the girl's education. Complainant appealed to the High Court of Justice in Bucharest, and there all his claims, even that relating to the education of the daughter, were admitted; the doctor had to pay 4000 lei for expenses and treatment, and from March, 1916, a sum of 60 lei monthly for the child's education up to her eighteenth year. The High Court decided, moreover, that if financial conditions altered, and 60 lei became insufficient, the complainant would be entitled to demand a correspondingly higher sum. The case and its decision aroused much interest; it is stated in the law journals that this is the first time that a Roumanian court has acknowledged a responsibility on the part of a doctor towards a late patient's family.

*New Law against the Sale of Alcohol in Bulgaria.*

The official organ of the Bulgarian Government, the *Zemledelszko Zuane*, has published the text of the proposed law against the sale of alcoholic beverages. The measure will shortly be introduced in the Sobranje (Bulgarian Parliament). Its more notable paragraphs are as follows:—

1. All public and private schools to include in their teaching of hygiene information relating to the detrimental effects of alcoholism.
2. Students, soldiers, and other persons under 20 years of age not to be admitted to bars, inns, or other public places where alcoholic liquors are sold.
3. All such places to be closed at 5 P.M. on Sundays and on holidays recognised by the State.
4. All business transactions, agreements, payments of debts made in the above places to be invalid, and strictly forbidden.
5. In villages the ratio of public bars to numbers of population not to exceed 1 in 1000, and in towns 1 in 2000.
6. Contracts of purchase or sale of alcoholic liquors not to be defended by the State under any circumstances.
7. The tax on alcoholic beverages, the freight duty on spirits, and the direct tax on alcohol to be raised 1000 per cent.

Jan. 10th.

# Public Health Services.

THE Registrar-General's statement showing the birth-rates and death-rates in England and Wales during the year 1921 will be found on p. 201. The weekly return of vital statistics for the week ending Jan. 21st in the principal towns of Scotland, showing an unprecedented death-rate, will be found on the same page.

### CHANGES IN MEDICAL CERTIFICATION.

We have already indicated the new alterations in the medical certification rules for insurance practitioners. Memo. 280/I.C., recently issued by the Ministry of Health, explains these changes and deals with certain general questions relating to certification in cases of incapacity for work. The amendments are the outcome of conferences between the Ministry and practitioners on the one hand, and between the Ministry and approved societies on the other.

*Final Certificates.*—Certain rules are modified so that the duty of practitioners is more clearly defined. For example, the new Rule 6 lays it down that a final certificate is not to be issued after the insured person has returned to work. To do so is to break the rules. Special final certificates can be issued in urban areas two days before the actual day on which the patient is expected to be fit to resume work, just as in rural areas they have been granted three days before the actual date of the conclusion of the illness.

In the new Rule 7 the form of the certificate is altered so that the word "to-day" is not in the printed form. Both the date of the examination and the date of issue of the certificate are to be given, and if these coincide the one date is given and the two lines bracketed. This emphasises the importance of the date of the examination when the insured person was in the condition certified. Rule 9 lays down the obligation that each certificate shall be based on a separate examination of the patient.

Rule 8 provides that a certificate which the practitioner is for any reason prevented from issuing at the actual time of the examination must be given or sent to the insured person within 24 hours.

Rule 11 provides for special intermediate convalescent certificates to be given only in cases of continuous attendance

on a case for 28 days and then to cover a period of 14 days while the patient is at the seaside or other convalescent home. If the insured person stays for a longer period away from home he must see a local practitioner. In any case he must go and see his own doctor immediately on his return home.

*Incapacity for Work.*—Certain general questions are here dealt with.

It is pointed out that the official certificate forms are not to be used for private patients and in giving any special certificate the form must not be altered. Any special information which the practitioner may desire to give to secure benefit for his patient must be in the form of a letter to the approved society.

The procedure for giving the special intermediate certificate in cases of prolonged incapacity is explained in detail because Rule 12 has been misunderstood. These certificates only apply in cases which have lasted a month and in which the illness is likely to be prolonged. Further, the case must be of such a nature that visits at more frequent intervals are not necessary for the proper treatment of a case.

No case which is so ill as to be incapable of work ought to be left longer than a month without personal medical supervision, and so no certificate must be given for a longer period than four weeks. If the society objects to less frequent certification the objection must be given in writing to the practitioner and he can appeal to his regional medical officer whose decision on the case must be accepted. Until the case has been decided the practitioner must give weekly certificates.

Practitioners who are worried by insured persons or approved society agents to give certificates on certain days of the week are asked to notify such cases to their regional medical officer. Emphasis is again laid upon the fact that ante-dating or post-dating of certificates will be treated as breaches of the terms of service. With regard to patients who are being treated at a hospital the practitioner cannot give certificates for his patient while he is an in-patient, but he is not free from the obligation if the insured person is being treated as an out-patient so long as he presents himself to his doctor for examination.

The rules, as a whole, have stood the test of experience, but these amendments are intended to ensure the smoother working of the system and are designed to assist practitioners and to remove many of their difficulties.

### WILLESDEN MUNICIPAL HEALTH SERVICE: VIEW OF THE MINISTRY OF HEALTH.

In reply to an inquiry addressed to him by the Medical Secretary of the British Medical Association, the Secretary of the Ministry of Health has replied as follows in a letter dated Jan. 12th:—

SIR,—I am directed by the Minister of Health to advert to your letter of the 19th ult. and enclosure relating to the scale of charges for medical services recently introduced by the Willesden Urban District Council, and to state that the Minister has informed the Council that he is not prepared to agree to the proposed annual registration fee of 2*s*. 6*d*. and he has requested the Council to rescind this part of the scheme.

The Minister's view is that no charge should be made for preventive as distinguished from remedial services in connexion with maternity and child welfare—i.e., for such services as the visiting of homes by health visitors, attendance of mothers and of children under 5 at consultation centres, and educational facilities provided at maternity and child welfare centres for expectant and nursing mothers. It is desirable that any mothers and children, and especially the more necessitous, should have the opportunity of profiting by these important services, if they so desire.

When, in the administration of the preventive services referred to, mothers and children are found to need further medical advice and treatment, the Minister considers that they should be advised to obtain it from private medical practitioners, and that treatment should be provided by the local authority only for cases in which the parent is unable for sufficient reason to obtain it from a medical practitioner or for ailments which experience shows are not generally treated unless provision is made by the local authority.

DONATIONS AND BEQUESTS.—Mrs. Nuttall, of Blackburn, has given £1000 to the local infirmary to endow a bed in memory of her late husband, an ex-mayor of the borough, and her younger son, who fell in the war.—The Chelsea Hospital for Women has received £200, the third instalment of the bequest of £500 of the late Mrs. Stephenson.—By will the late Mr. Thomas Worton, of Walthamstow, among other bequests, left £1000 to the National Institution for the Blind, for the after-care of sailors and soldiers blinded in the war; and £1000 to the Children's and General Hospital, Walthamstow.

# Obituary.

## MAX VERWORN,

PROFESSOR OF PHYSIOLOGY IN THE UNIVERSITY OF BONN.

IT will come both as a surprise and a grief alike to physiologists and zoologists to learn that Prof. Verworn died at Bonn on Nov. 23rd, a few days after completing his fifty-eighth year. Born in Berlin, the son of a Prussian official, Verworn studied arts, natural science, and medicine in his native city and in Jena, qualifying as privat-docent in physiology in Jena in 1891. In 1895 he was made extraordinary professor in Göttingen, and on the death of Pflüger in 1910 he was appointed as his successor in Bonn. In 1916 Verworn was invited to fill the chair of physiology in Leipsic on the death of E. Hering, but he found himself so happy in Bonn that he declined the invitation. At the beginning of the present century the custom of inviting distinguished men of science to address audiences in the United States was coming into vogue. On two occasions Verworn accepted invitations, one to St. Louis, and another, in 1911, to deliver the Stillman lecture in the University of Yale. On this latter occasion he dealt with the subject of Irritability.

His reputation amongst physiologists and biologists brought Verworn many academic distinctions, amongst others that of member of the Göttingen Society of Natural Sciences, of the Senckenberger Institute of Frankfort, the Accademia dei Lincei in Rome, and of corresponding learned societies in Vienna and Moscow. Cambridge conferred on him the degree of Doctor of Science, and St. Andrews that of Doctor of Laws. Verworn's outlook on physiology was a singularly wide and comprehensive one, and, influenced largely by his zoological studies under F. E. Schultze and by his visits and sojourn to the Naples Zoological Station and to the Coast of the Red Sea, he brought to the elucidation of physiological problems an immense knowledge, more especially of the invertibrate marine fauna. His works on the protozoa led him to attach great importance to the phenomena in the "elementary organisms" or cells, and to apply the results obtained from his study of these to the elucidation of phenomena manifested by the metazoa. His classic, "Psychophysiologische Protistenstudien," appeared in 1889, and his studies on the movements of living substance in 1892. But the work by which he is best known is his "Allgemeine Physiologie," first published in 1895, which passed through many editions in Germany, and on its translation into English became the standard work on "General Physiology," as the term was understood at that time. His studies on the nervous system have contributed in no small degree to our knowledge of reflex action, sustained or tonic reflexes, hypnosis, and the experimentum mirabile of Kircher, while his exposition, "Das Neuron in Anatomie und Physiologie" (1900), once more illustrated his views on the cellular function of the central nervous system. As an extension and vindication of these views he published "Die Biogenhypothese" in 1902, and in 1914 "Erregung und Lähmung," itself an amplification of his lecture on Irritability delivered at New Haven. For many years his attention was directed to the central nervous system, and in 1907 there appeared "Mechanik des Geistesleben," of which several editions have since been issued, dealing with the basis of memory, of association processes, and in this work his profound philosophic studies made themselves apparent.

By the death of Max Verworn physiology has lost an interpreter of many recondite physiological processes in nature, as well as a keen investigator and inspirer of research, while the University of Bonn has lost a highly esteemed professor. Verworn did not confine his attention to physiology, but did valuable work on anthropology and numismatics.

# Correspondence.

"Audi alteram partem."

## THE SPREAD OF INFLUENZA.

*To the Editor of* THE LANCET.

SIR,—Influenza being again with us, much attention naturally is being directed to prophylaxis of the naso-pharyngeal tract in respect to "droplet infection" as exemplified in sneezing and coughing. Experiments on humans in America, in which abortive efforts to infect the tract by accepted natural methods and by direct application of discharges from influenza patients were employed,[1] indicated the possibility of finger contamination playing an important part in spread. Doubtless research workers during the opportunity now afforded in this country will not neglect this aspect of the question; but I suggest that, in the meantime, practitioners could greatly aid the direction in which investigation could usefully proceed by compiling notes of the histories of suspected modes of invasions of their patients. In areas where persons do not hesitate to hand to their fellow-beings letters adorned with freshly-licked stamps or shake hands immediately after using a defiled handkerchief, and where in cheap restaurants vague ideas prevail as to cleanliness of forks, spoons, and cups, the opportunities of estimating the chances of infection should be abundant.—I am, Sir, yours faithfully,

W. G. KING,
Colonel, I.M.S. (ret.)

Hendon, N.W., Jan. 17th, 1922.

## TREATMENT OF INFLUENZA:

### 800 CONSECUTIVE CASES WITH TWO DEATHS.

*To the Editor of* THE LANCET.

SIR,—In the early part of 1919 I sent you the enclosed letter, upon which you briefly commented. The article by Dr. J. G. Willmore and Dr. F. M. Gardner-Medwin in your issue of Jan. 21st confirms the opinions I expressed three years ago, and I think that the publication of the notes will be of interest to them and to others. It only remains to state that after I sent you the notes I had a further 300 consecutive cases with no fatalities, so that the correct title can now be as above. A record of which I am proud.

During the present mild epidemic I have had about 80 cases, which treated on the lines laid down have caused me no anxiety.—I am, Sir, yours faithfully,

H. O. BUTLER, M.B.

Sutton Court-road, W., Jan. 23rd, 1922.

[ENCLOSURES.]

### *500 Consecutive Cases of "Influenza" with One Death.* By H. O. BUTLER, M.B.

A chance conversation with the local acting M.O.H., in which he expressed himself surprised at this result, and a further chat in which he stated the great improvement he had noticed since starting the method of treatment advocated, has induced me to send you this note on the method of treatment I have used.

Every case had an initial purge of castor oil or calomel, which was repeated if abdominal symptoms required (and here I may state that however serious the condition of toxæmia, I have never seen anything but good follow their use), and then was put on to 20–30 gr. bicarbonate of soda four-hourly and kept on it, and that, with tepid sponging if temperature rose above 103° F., was all.

The only disadvantage of the treatment I have so far discovered is that its simplicity prevents its general use, so that patients think that not enough is done for them. Of its value I have no doubt whatever. The change after 24 hours of this treatment in the condition of the patient, who has too often been soaked with every conceivable drug and is in a profoundly toxic state, is remarkable. The colour alters at once, the abdominal pain lessens, the cough loosens, and the tongue begins to clear. Most patients had taken one of the salicylic preparations and this was stopped at once. If I saw one in the very early stage of the disease, I allowed four aspirin tablets altogether, which one knows usually makes them more comfortable until the system has accustomed itself to the raised temperature. During the first 24 hours food was withheld as much as possible and even for the first 48 hours was not encouraged, though water ad lib was urged, with bicarbonate of soda in it, unless, of course, aspirin had been ordered. For the pain in the throat, hot fomentations are the only things which have in my hands helped.

How bicarbonate of soda acts I do not know, but considering the relief it gives to the abdominal pain and distension, it probably inhibits the growth of the streptococcus, which, I believe, is the chief causal organism of the complications of the disease, and neutralises its toxin. On two occasions I have given in markedly toxic cases bicarbonate of soda by intravenous infusions, but I could not satisfy myself that it was of value, which confirms my own opinion that the organism responsible for the complications has its habitat in the bowel. In two cases in women with a tendency to cystitis the drug had to be stopped for a time, and hexamine and acid sodium phosphate was given in alternate doses until the urine became acid again.

I should like other practitioners to give the method a trial. The drug is in every household as is castor oil, and in these times of stress that is something.

It must be clearly understood that a case was not, for the purpose of this series, considered to be influenza unless it showed catarrhal signs in the lungs. Only about 20 showed signs indicating consolidation of the lung, though many by the presence of blood-stained sputum proved it was present. The occurrence of nose bleeding, and of what is often associated with it—melæna—did not prevent me continuing the treatment.

Of course, I know that 500 cases is a small number to dogmatise upon, and, in fact, since this was written I have had another death. The case, however, was so acute, and the vomiting of blood and mucus so persistent, that it was impossible to get soda bicarb. to be retained. Intravenous infusion was again tried but with no result.

I have asked my friend Dr. Leaning, the local M.O.H., to add a note of his observations on the method of treatment suggested above.

March, 1919.

### *A Further Note on the Treatment of "Influenza" by the Above Method.* By R. CRASKE LEANING, M.O.H., Chiswick Urban District.

When making the necessary inquiries and observations respecting the epidemic, I was much impressed by the remarkably successful results following Dr. Butler's mode of treatment. He kindly gave me details of this method which I have since carried out in my private practice. The results I have so far obtained have shown such a marked superiority over any other method I have tried, and the improvement of even serious cases has been so rapid, that I urged him to make the matter public, as I am convinced of the soundness of his treatment, which, in my opinion, is founded on clinical requirements.

Excluding the fulminating meningeal type, which now appears to be much more rare than in the early days of the epidemic, I suggest that the present fatal type which is now so prevalent is due primarily to an attack of influenza, caused by the *B. influenzæ*, and that the serious complications (excepting true lobar pneumonia) are due to a bowel streptococcus.

The most fatal sex and age group appears to be females between 20 and 35 years; another fatal group is girls between 15 and 20 years, the sex and ages in which chronic constipation and the accompanying intestinal disorders are most common, and consequently in which one would consider the streptococcus would most readily flourish.

Clinically, the torpid aspect and peculiar colour of the face, the distended abdomen and pain over the liver (suggesting some portal infection or congestion), the presence of malæna and epistaxis, and the frequent absence of an abdominal reflex, all point to an intestinal toxæmia. Also, in my opinion, the lung complications in the septic cases are nearly always preceded by distant coarse crepitation at the right base, which, together with the pain over the liver, suggest some perihepatitis or diaphragmatic pleurisy. This is rapidly followed by the spreading indefinite pneumonia signs we have now learned to dread.

I conclude that too much attention has been given to the lung condition at the expense of the causative factor—viz., the intestinal infection.

Dr. Butler's method of treatment appears to aim directly at the cause of the complications, partly by neutralising the toxins, as evidenced by the rapid improvement, and partly by loosening the germ-laden mucus and facilitating its removal. Also—a matter of great importance—he avoids agents which may increase gastric or intestinal catarrh. Other practitioners in this district who also devote their main treatment to intestinal eliminations and have avoided drugs aimed only at the lung condition and the pyrexia have been rewarded with good results.

[1] U.S. Public Health Service Reports, Dec. 20th, 1918, and Jan. 10th, 1919.

I have no hesitation in saying that this method of treatment should be tried in those cases where hitherto the prognosis has been thought to be bad or even hopeless. Also, as Dr. Butler points out, the simplicity of this mode of treatment and the presence in nearly every household of the only agents required make it extremely valuable in this pandemic with its accompanying shortage of doctors and nurses.

## MAURITIUS INFELIX.

*To the Editor of* THE LANCET.

SIR,—Interesting mention of Dr. Andrew Balfour's visit[1] to Mauritius is contained in a letter which has reached me from a correspondent writing in the middle of November.

"A Royal Commission was sent to inquire into the state of health in the island. Dr. Balfour, who was the head of it, condemned many of the (sugar) estates and the dirt of Port Louis. The people there heard he was going into every house and they promptly turned out all the collection of years of filth into the roads. I shall never forget the sight. It was so horrible: piles in front of all the houses and shops, and the scavengers could not get it away or burn it quickly enough."

With the consequent breakdown in sanitary organisation following on this spasmodic and simultaneous effort of the inhabitants to cleanse their dwellings, it is perhaps not surprising that the correspondent continues, "Since then plague and typhoid have spread." Earlier reference to the former appears in the same letter. "There is another outbreak of plague and it is spreading rapidly." Dr. Balfour's lantern demonstration given before the Royal Society of Tropical Medicine and Hygiene last month clearly showed the facilities afforded to the introduction of plague into the island by vessels mooring to the quayside without adequate precautions to prevent infected rats from reaching the shores. Official returns suggest that infection was possibly conveyed to Mauritius during the past year by vessels bound from Tamatave, the chief port of Madagascar, where 75 cases and 46 deaths of plague were reported between March 3rd and April 5th, 1921. The first case recorded in Mauritius (550 miles east of Tamatave) occurred in Port Louis during the week ending May 25th and proved fatal. After a clear month's interval two further cases, one fatal, developed at the end of June, succeeded in the following fortnight by 11 more, seven of which were fatal. There ensued another lull, judged sufficient no doubt to warrant the official report of August 9th: "No further cases since July 14th. Colony declared free." Subsequent events, however, proved this sanguine view to be premature. Plague again declared itself at Port Louis in the middle of August and continued in an ascending scale, as the following returns show:—

| | Cases. | Deaths. |
|---|---|---|
| Between August 10th and Sept. 9th .. | 11 .... | 6 |
| ,, Sept. 10th and Oct. 9th .. | 33 .... | 21 |
| ,, Oct. 10th and Nov. 9th .. | 125 .... | 94 |

Infection was no longer confined to the principal port and gradually spread elsewhere in the island at an increasing rate. The figures given for the whole island during the past four months are as follows:—

| | Cases. | Deaths. |
|---|---|---|
| September .. .. .. | 30 ..... | 15 |
| October .. .. .. | 100 ..... | 69 |
| November .. .. .. | 145 ..... | 101 |
| December .. .. .. | 93 ..... | 62 |

It would therefore seem that consequent upon the neglect to enforce such preventive measures as pointed out by Dr. Balfour on vessels seeking harbourage at Port Louis, no fewer than 368 cases of plague with a mortality-rate of 67 per cent. have occurred up to date in the past seven months. The final week of December shows a welcome fall to eight cases and four deaths, which it is hoped may prove more than a temporary abatement.

As though the plague was not sufficient a visitation, in addition to malaria and other endemic infections, influenza during 1921 claimed a large number of victims, not, it is true, approaching in degree the severe outbreak in 1919. Then indeed over 15,000 inhabitants perished from influenza in the short space of three months, and the graphic account of the results given by Mr. A. F. Fokeer[2] in some measure recalls the paralysing havoc of the terrible epidemic of malaria in 1867 and 1868. During 1921, for nine months up to the end of October, no fewer than 12,316 cases of influenza were officially reported with just under 1439 deaths, a case mortality-rate of 11·6 per cent. The additional death toll provided by plague and influenza can be regarded as no light one, falling as it does on a population of some 380,000 inhabitants, among whom 3000 to 4000 are reckoned to die annually of endemic malaria alone.

The events of the past year undoubtedly justify Dr. Balfour's powerful appeal for measures of reform on a far-reaching scale to cope with the pestilential condition into which Mauritius has unhappily fallen. The present state of the island, once little short of an earthly paradise, now victim to well nigh the whole gamut of tropical and subtropical disease, would appear indeed no credit to colonial or local sanitary administration. It must be admitted, however, that native and natural obstacles to improvement, if not insuperable, are at least formidable.

I am, Sir, yours faithfully,

J. GRAHAM FORBES.

Savoy-hill, W.C., Jan. 13th, 1922.

[1] THE LANCET, Dec. 31st, 1921, p. 1381.

## TREATMENT OF WHOOPING-COUGH BY OZONE.

*To the Editor of* THE LANCET.

SIR,—For the week ended Jan. 7th, 1922, 130 deaths from whooping-cough were registered in the 105 great towns of England and Wales (53 deaths in London); and for the week ended Jan. 14th 14 deaths were registered in Poplar. Whooping-cough is very rife in Poplar at the present time, 113 notices from schools having been received during the two weeks ended Jan. 21st, and the disease is badly prevalent in Poor-law institutions.

During the past 10 years for purifying the air there has been installed in the waiting-room of this borough's tuberculosis dispensary a movable ozone apparatus, which has done its work and no complaints have been received; so I determined to try its curative effects in whooping-cough, especially as text-books state the more the patient is in the fresh air the less severe the disease, and change of rooms is advocated for day and night. At this time of year, with variable climatic conditions, it is very dangerous for a child suffering from whooping-cough to be exposed to the weather, and even windows cannot safely be kept open. So far as the change of rooms is concerned, this is not always possible.

I had the ozone apparatus, previously mentioned, taken to the home of a recent case of whooping cough with bad paroxysms, instructed the parents to switch on the current for a short period several times during the 24 hours and fill the room with ozonised air. It may be too soon to pass an opinion, but certainly the child seems better in every respect, and not the least inconvenience was experienced by its attendants. The smell of ozone pervades the room and the air feels fresh and pleasant.

Text-books state that the organisms "bacilli pertussis" are found more often below the larynx than above it and in the remoter parts of the respiratory tract. If the cause of the paroxysms be the toxin from the bacilli entering the body and affecting the nervous system before sufficient antitoxin is formed to neutralise the toxin absorbed, then one must aim at killing the bacilli, and diluted ozonised air may be the means of effecting such, cutting short the disease and relieving the distressed patient and his anxious relatives.

[2] THE LANCET, Oct. 1st, 1921, p. 740.

As there is no institution in the borough over which I have direct control as regards treatment I shall endeavour to obtain a room as soon as possible, have the apparatus at work, and persuade parents to bring (subject to weather conditions) chronic cases of whooping-cough to have a dose of "ozonised air," and I hope the same treatment may receive a trial in institutions where whooping-cough cases are treated.

I am, Sir, your faithfully,

FREDK. WM. ALEXANDER,
Jan. 21st, 1922. M.O.H. Poplar.

## POST-OPERATIVE EMBOLISM AND INFARCTION.

*To the Editor of* THE LANCET.

SIR,—It almost seems necessary to apologise for another letter upon a subject connected with morbid anatomy. Those, however, who have had considerable experience in the post-mortem room are frequently seeing reference to appearances which are rare, or have not attracted much attention, yet are obviously not without interest or importance. There is one curious form of thrombosis of the smaller divisions of the pulmonary artery which on a few occasions attracted my attention. On cutting through the lung, in the routine way, in order to expose a surface of the interior, a considerable number of small pale thrombosed vessels, cut across, are seen standing up over the cut surface of the lung. They become unusually prominent because the normal shrinking of the lung, due to its elasticity, leaves them "high and dry" upon the bleeding surface.

One such case was seen where death had occurred after an operation for ovarian tumour. There had been acute dyspnœa about three days—if I remember rightly—after the operation. Two other examples were seen, in cases of chronic peritonitis. This suggested to me that the thrombosis might in some way be associated with ovarian or peritoneal fluid. A few examples were, however, met with in cases where the cause of death was not connected with the abdomen. The condition was one of those many appearances that a morbid anatomist notes and stores in his memory in the hope of getting further light on the subject. That light may never come. But the recording of the fact that appearances occur upon which light is needed may not be without its value.

I am, Sir, yours faithfully,

Jan. 18th, 1922. THEODORE FISHER.

PS.—In my letter upon the pericardium published in THE LANCET of Dec. 24th, 1921, there was a slight misprint: "*sample* experiments" should have been "*simple* experiments."

## THE MENTAL FACTOR IN VISCEROPTOSIS.

*To the Editor of* THE LANCET.

SIR,—In his interesting article on this subject in THE LANCET of Jan. 14th, Dr. W. H. B. Stoddart humorously remarks that no amount of psychotherapy will remove the anxiety of a penniless widow—or words to that effect. In other words, the poor widow has a real cause and excuse for her anxiety. There is, then, no need to label her as a "neurotic." May I ask Dr. Stoddart to consider that the patient who is regarded by doctors as an "anxiety neurotic" may have an equally good excuse for his anxiety? That is, that there may be no such thing as a neurotic, but that all people so labelled—if not libelled—are simply invalids with a lesion comparable to the poverty of the widow, *which makes them anxious.*

I suggest to Dr. Stoddart that he might with more justice consider visceroptosis as a cause of anxiety, instead of vice versa, as he holds. As his thesis stands, we are entitled to ask him to account for the occurrence of the anxiety in the first instance. A really healthy person takes no (anxious) thought for the morrow, given the necessities of life. I feel sure Dr. Stoddart will be interested to know that it is the writer's experience that anxiety follows visceroptosis. The latter must always—authorities in medicine and physiology hold—be accompanied by a degree of anæmia of the brain (the body being erect) and, also, highly probably, by a degree of toxæmia from the intestinal tract. That is to say, the functions of the brain cannot be expected to be performed healthily. The anxiety, then, may logically be regarded as the expression of disturbed brain function, which is the result of ill-nutrition of the brain, which follows visceroptosis, which follows . . . . ?

Here is the problem: To my mind visceroptosis must be regarded, in the light of Lane's teaching, as a result of the intoxication induced by the absorption of putrefaction products resulting from stasis in the intestines, for visceroptosis is merely part of a general muscular atonicity (toxic) throughout the body. Therefore we must learn to cure and prevent intestinal stasis.

I am, Sir, yours faithfully,

Bournemouth, Jan. 21st, 1922. JAMES C. WATT.

## A CASE FOR DIAGNOSIS.

*To the Editor of* THE LANCET.

SIR,—With reference to the case detailed by Dr. J. Jerome Suckling in THE LANCET of Jan. 14th I may say that I had an almost exactly similar case in my practice some years ago, but in a woman of about 25. As there were peculiar circumstances regarding her position, and as there were suggestions that she had been poisoned, I had a post-mortem made by an eminent pathologist, and we decided that the cause of death was syphilitic endarteritis, leading to gangrene of the bowel, this causing the hæmorrhage.

I am, Sir, yours faithfully,

Blackpool, Jan. 16th, 1922. LEONARD MOLLOY.

# The Services.

### ROYAL NAVAL MEDICAL SERVICE.

Surgn. Cmdrs. G. Nunn to *Resolution* and H. F. Briggs to *Crescent*, for R.N. Sick Quarters, South Queensferry.

Surgn. Lieut.-Cmdr. D. P. H. Pearson to *Ceanothus* and to *Clematis* (on arrival).

### ROYAL ARMY MEDICAL CORPS.

Maj.-Gen. Sir F. R. Newland, late R.A.M.C., is placed on ret. pay.

Lt.-Col. C. F. Wanhill retires on ret. pay.

The undermentioned Officers, late R.A.M.C., retire on ret. pay: Maj.-Gen. Sir M. T. Yarr, and Cols. W. G. Beyts, H. A. Bray, E. W. Slayter, T. P. Jones, G. A. Moore, R. W. Grattan, R. W. Clements, and W. E. Hudleston.

The undermentioned Cols., late R.A.M.C., on completion of four years' service in their present rank, are placed on half pay: H. S. Thurston, A. E. C. Keble, G. T. K. Maurice, and J. C. B. Statham.

Lt. (temp. Capt.) D. W. M. Mackenzie to be Capt.

#### ARMY MEDICAL RESERVE.

Lt.-Col. J. W. Jennings, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

#### ARMY DENTAL CORPS.

Temp. Capt. N. H. Medhurst, from unempld. list, R.A.F. Dental Branch, to be Lt. and to be temp. Capt.

#### TERRITORIAL ARMY.

Capt. (Bt. Maj.) C. W. Wirgman resigns his commn. and retains his rank.

Capt. H. B. Whitehouse, from 1st S. Genl. Hosp., to be Capt.

Capt. N. St. J. G. D. Buxton, Res. of Off., to be Capt.

#### TERRITORIAL ARMY RESERVE.

Lt.-Col. F. E. Fremantle, from Gen. List, R.A.M.C., to be Lt.-Col.

Capt. F. B. Smith, from Gen. List, R.A.M.C., to be Capt.

### INDIAN MEDICAL SERVICE.

Lieutenants to be Captains: R. T. W. Stoney, Ajab Singh Garewal, S. C. Mitchell, A. Ba-Thaw (temp. Capt.), J. G. McCann, E. T. N. Taylor, Daya Ram Thapar (temp. Capt.), A. V. Lopes, Iqbal Singh Nalwa (temp. Capt.), J. W. F. Albuquerque (temp. Capt.), Gautam Kumar (temp. Capt.), T. H. Almond (since resigned), and R. C. Watts (temp. Capt.).

## VITAL STATISTICS FOR ENGLAND AND WALES.

BIRTH-RATE, DEATH-RATE, AND INFANT MORTALITY DURING THE YEAR 1921 (PROVISIONAL FIGURES).

| — | Birth-rate per 1000 total population. | Death-rate per 1000 population (crude rate). | Deaths under one year per 1000 births. |
|---|---|---|---|
| England and Wales .. | 22·4 | 12·1 | 83 |
| 96 Great Towns, including London (populations exceeding 50,000 at the Census of 1911) | 23·5 | 12·3 | 87 |
| 148 Smaller Towns (populations from 20,000 to 50,000 at the Census of 1911) .. | 22·7 | 11·3 | 84 |
| London .. .. .. | 22·8 | 12·4 | 79 |

The death-rate for England and Wales relates to the whole population, but that for London and the groups of towns to the civilian population only.

The death-rate for England and Wales is the lowest on record for the country as a whole, and the infant mortality is the lowest on record, with the exception of the rate in 1920. The birth-rate is the lowest recorded for the whole country, except in the war years 1915–1919.

### THE REMARKABLE DEATH-RATE IN SCOTTISH TOWNS.

FROM the Registrar-General's weekly return, for the principal towns of Scotland, for the week ending Saturday, Jan. 21st, the corrected number of deaths was 1930. The equivalent corrected death-rate is 42·5 per 1000. The death-rate for the week is 15·8 above that for the previous week, 22·3 above the mean of the rates for the three preceding weeks, and 25·9 above that for the corresponding week of last year. It is the highest principal town weekly death-rate since that of the week ending March 2nd, 1895, which was 42·8. In the influenza epidemic of 1918–19 the highest corresponding death-rate was 40·0, occurring in the week ending March 1st, 1919. During the week ending Jan. 21st deaths from influenza numbered 379, being 227 more than in the previous week. Deaths from respiratory diseases numbered 681, being 310 more than in the previous week.

# Medical News.

UNIVERSITY OF ST. ANDREWS.—At the graduation ceremonial held on Jan. 20th the following degrees were conferred:—

*M.B., Ch.B.*—Thomas King Buchanan, Phyllis Fleming, Nons Smith Lesslie, Katharine Duff Macfarlane, James Norman Douglas Smith, and Margaret Helen Rattray Young.

ROYAL SANITARY INSTITUTE.—A meeting will be held at 90, Buckingham Palace-road, London, S.W. 1, on Feb. 14th, at 5.30 P.M., when a discussion will take place on the Administrative Measures Necessary in Regard to the Slaughtering of Animals, and the Storage and Transport of Meat in Connexion with the Report Issued by the Ministry of Health. Dr. W. M. Willoughby, Mr. J. Edwards, and Mr. J. Dixon, M.R.C.V.S., will open the discussion and the chair will be taken by Sir Horace Monro.—Another meeting will be held on Feb. 17th, in the Guildhall, Norwich, at 6 P.M., when a discussion on the Carrier Problem in Disease will be opened by Dr. S. L. Leggat, and on the Norwich Flood, 1912, by Mr. Henry Wood. The chair will be taken at 6 P.M. by Dr. Louis C. Parkes. On Feb. 18th, at 10 A.M., visits will be made to the new road over river and railway at Heigham, the waterworks, and the observation pavilion of the isolation hospital. Those proposing to attend the meeting and the visits are asked to notify the Hon. Local Secretary, Dr. H. Cooper Pattin, Churchman House, 68, St. Giles'-street, Norwich, not later than Feb. 11th.

Dr. George Reid, Medical Officer of Health to the Staffordshire County Council, has resigned after holding that office for more than 30 years.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.—The annual general meeting of this Society will be held at 122, Harley-street, London, W. 1, on Monday, Jan. 30th, at 4 P.M.

AT a meeting on Jan. 18th the Lewisham Guardians decided to buy Bromley Hill Court, a house and estate of five acres, for additional hospital accommodation. The purchase and necessary alterations are expected to involve an expenditure of from £15,000 to £20,000.

HOSPITAL FOR SICK CHILDREN.—A course of post-graduate lectures are being delivered at the hospital, Great Ormond-street, London, W.C., this session on Thursdays, at 4 P.M., and are free to medical practitioners. On Feb. 2nd Dr. R. S. Frew will take as his subject Pain in Infancy. Subsequent lectures will be announced in our Medical Diary.

INFANTS HOSPITAL.—A course of six lectures on the Physiology and Pathology of Ante-natal and Early Post-natal Life will be given by Dr. W. M. Feldman in the lecture theatre of the hospital at Vincent-square, London, S.W. 1, on Thursdays, at 4 P.M., beginning on Feb. 2nd. The first lecture will deal with Fœtal and Infantile Mortality and the Peculiarities of Child Life. On the 9th the subject will be Embryonic Physiology and Pathology; on the 16th, Fœtal Physiology and Fœtal Nutrition; on the 23rd, the Physiology and Pathology of the New Born, Initial Loss of Weight and Icterus Neonatorum. The two lectures on March 2nd and 9th will be devoted to the Physiology of the Infant. The lectures will be illustrated and the practical significance of the various points dealt with will be pointed out and discussed. Members of the profession are cordially invited to attend.

LONDON SCHOOL OF TROPICAL MEDICINE.—On Jan. 20th an interesting ceremony took place at the London School of Tropical Medicine, Endsleigh-gardens, N.W. 1, when Sir Patrick Manson, F.R.S., was present at the unveiling by Sir James Michelli, C.M.G., of his portrait. The portrait, which was painted by Mr. Webster, has been subscribed for by a large number of Sir Patrick Manson's friends, both at home and abroad, and by past and present members of the school. An engraving is shortly to be made of the portrait, copies of which will be forwarded to subscribers and other copies will be on sale to members of the profession. A fund has also been established, in the hands of a committee over which Sir William Leishman, F.R.S., presides, for the institution of a medal to be awarded annually for clinical research, and to be known as the Manson Medal. The ceremony took place in the entrance hall of the school, Prof. A. Alcock, F.R.S., briefly indicating the objects of the memorial fund. Sir James Michelli, in unveiling the portrait, referred to his long and intimate association with Sir Patrick Manson, to the history of the foundation of the school and the struggles of its earlier days. Sir Patrick Manson, who was received with great enthusiasm, briefly responded. He looked forward to the time when thousands of medical men would flock to the school; the success it had attained in its comparatively short career had been remarkable and he believed in the future it would be even greater.

UNIVERSITY OF BIRMINGHAM.—A course of post-graduate clinical demonstrations has been arranged for Tuesday, Wednesday, and Friday afternoons during the next two months. Among the demonstrations to take place in February are the following: At the General Hospital on Feb. 1st, Mr. Beckwith Whitehouse on Some Points in Gynæcological Diagnosis; Feb. 3rd, Mr. Percival Mills on Common Deformities of the Foot; Feb. 10th, Dr. A. P. Thomson on Diabetes; Feb. 17th, Dr. K. D. Wilkinson on Aortic Regurgitation; Feb. 21th, Dr. W. H. Wynn on Chronic Arthritis, its Differential Diagnosis and Treatment. At the Queen's Hospital on Feb. 7th, Mr. B. J. Ward on Prostatic Obstruction: its Consequences and Treatment; Feb. 14th, Dr. Emanuel on Cardiac Irregularities; Feb. 15th, Mr. Lewis Graham on Prolapse Uteri; Feb. 21st, Mr. Gemmill on Some Fractures of the Upper Extremity; Feb. 28th, Mr. Goodwin on Common Infections of the Kidney. Dr. Beatson Hird will give a demonstration at the Eye Hospital on Corneal Diseases. The demonstrations will be held from 3.30 to 5 P.M. In the report of the University Council to be presented at the annual meeting of the Court of Governors the great need for additional accommodation for laboratories, lecture theatres, and class rooms for the faculty of medicine and arts is pointed out. The number of medical students for the session 1920–21 was 259, as compared with 227 for the previous session, 123 in 1918–19, and 89 in 1917–18.

To help in stimulating cancer research throughout the world Lord Atholstan has offered a prize of 100,000 dollars (£20,000) to the graduate or student of any recognised university who within the next five years is the first to discover a medicinal treatment for the effective cure of cancer. The Royal College of Physicians of London and the Royal College of Surgeons of England are suggested by Lord Atholstan as the bodies to be invited to decide whether the prize has been won, and by whom.

POST-GRADUATE COURSE IN VIENNA.—The Vienna Medical Faculty is arranging the fifth international educational course of lectures on Diseases of the Digestive Organs, to be held from Feb. 13th to 25th. The professors and lecturers are giving their services gratuitously, and the only fee charged will be an entrance fee of 10,000 kronen, equivalent approximately to 8*s*. Foreign practitioners are invited to attend the course and should communicate with the *Wiener medizinische Wochenschrift*, Porzellangasse 22, Vienna IX., giving name and address in England and stating their wishes as regards accommodation.

THE LATE DR. L. COLBOURNE.—Dr. Louis Colbourne, who died at his residence at Beckenham on Jan. 7th in his seventy-third year, graduated M.B., C.M. Edin., with first-class honours, in 1872. After holding a resident appointment at the Royal Infirmary, Edinburgh, he went to Buenos Aires and took a local degree, successively became resident medical officer, and visiting and consulting surgeon to the British hospital.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL.—During the past year several new features have been introduced into the course of instruction for post-graduate and senior medical students given by the medical staff of this hospital. A special intensive course of lectures and demonstrations was given in December, 1921, consisting of eight lectures and demonstrations, and was largely attended. Another innovation was the introduction of a consultation afternoon once a month. At these meetings cases are shown and discussed by the members of the staff, particular attention being given to difficulties in diagnosis and treatment. Further information may be obtained from the Secretary at the Hospital, Gray's Inn-road, W.C. 1.

ST. ANDREWS INSTITUTE FOR CLINICAL RESEARCH. A course of post-graduate study for general practitioners under the direction of Sir James Mackenzie will begin on Wednesday, May 3rd, and will extend over three weeks. The course will consist of lecture-demonstrations dealing with the symptomatology of disease in its early stages, and will be supplemented by demonstrations on matters of clinical interest in anatomy, physiology, chemistry, bacteriology, ophthalmology, and radiology. The fee for the course is £10 10*s*. Graduates desirous of attending this course should communicate as early as possible with the Secretary, The Clinical Institute, St. Andrews, from whom full particulars can be obtained.

B.M.A.: CHESTERFIELD DIVISION.—The annual dinner will be held at the Falcon Restaurant, Low Pavement, Chesterfield, on Wednesday, Feb. 8th, at 8 P.M. Amongst those expected to be present are: Dr. Wallace Henry, Major-General Sir R. Luce, and Dr. Alfred Cox. At 9 P.M. Dr. Cox will speak on how the B.M.A. could be made more useful to the medical profession, and questions will be invited after his address. Any member of the profession will be welcomed. Tickets for the dinner are 12*s*. 6*d*. without wine, and may be obtained from the Hon. Sec., Dr. H. W. Pooler, Stonebroom, Alfreton.

A course of post-graduate lectures will be held in the Chesterfield Royal Hospital board-room, Holywell House, Chesterfield, on Fridays, from 2.30 to 4 P.M. The first lecture will be given by Prof. A. J. Hall on the Diagnosis of Organic Nervous Disease on Feb. 3rd.

THE LATE DR. E. RAYNER.—Dr. Edwin Rayner, formerly of Stockport, died in his seventy-eighth year at his residence in Woking on Jan. 18th. Dr. Rayner was the son of Dr. William Rayner, of Stockport. He studied medicine in Paris and at University College, London, having taken the degree of B.A. in the University of London in 1863. He became B.L. and B.Sc. Franc. in 1864, M.B. Lond. in 1869, and M.D. in 1870, taking his F.R.C.S. Eng. in 1869. After holding appointments as house surgeon and physician assistant at University College Hospital he settled in Stockport, where he became a well-known and much esteemed doctor with a large practice. For over 30 years he held the post of honorary surgeon of the Stockport Infirmary and did much directly and indirectly to advance its interests. Dr. Rayner was medical officer of the borough for 19 years, and for nine years he was honorary treasurer of the British Medical Association. For some years also he was a member of the court of the University of Manchester. Dr. Rayner retired from practice some years ago.

UNIVERSITY OF MANCHESTER.—The executors of the late Hermann Wooley, who for many years was treasurer of the University, have given a donation of £1000 towards the endowment of a lectureship in Pharmaceutics.

MANCHESTER ROYAL EYE HOSPITAL.—At the annual meeting of the trustees and friends of this institution it was stated that 33,000 patients were treated during the year, of whom at least one-fourth came from places outside Manchester and Salford.

PROPOSED MEMORIAL TO THE LATE PROF. DELÉPINE.—A committee has been formed, consisting of the Vice-Chancellor, Sir Edward Donner, Dr. J. Niven, Dr. A. E. Brindley, Dr. Slater, Dr. E. J. Sidebotham, and Mr. H. Heap, with a view to placing a bronze tablet in the Public Health Laboratory in memory of Prof. Delépine. Those of his old pupils and friends who would like to subscribe are asked to send subscriptions, which should not exceed £1 1*s*., to Dr. E. J. Sidebotham, Public Health Laboratory, York Place, Manchester.

# Medical Diary.

***Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.***

## SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Feb. 2nd.—List of probable papers: C. Shearer: On the Ox dation Processes of the Echinoderm Egg during Fertilisation. J. Schmidt: The Breeding Places of the Eel (communicated by Mr. C. T. Regan). J. Gray: The Mechanism of Ciliary Movement. The Effect of Ions on the Cell Membrane (communicated by Prof. J. S. Gardiner). J. S. Huxley and L. T. Hogben: Experiments on Amphibian Metamorphosis and Pigment Responses in Relation to Internal Secretions (communicated by Prof. E. W. MacBride).

**ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.**

*MEETINGS OF SECTIONS.*

**Wednesday, Feb. 1st.**

SURGERY: at 5.30 P.M.
*Demonstration:* Major H. D. Gillies: Plastic Surgery.

ORTHOPÆDICS.
Members of this Section are cordially invited to attend the above meeting of the Section of Surgery.

**Thursday, Feb. 2nd.**

MEDICINE: at 5 P.M.
*Discussion:* On "The Treatment of Gastric Ulcer."
Speakers: Sir William Hale-White, Sir William Willcox, Sir Berkeley Moynihan, Mr. Sherren, Dr. Robert Hutchison, Dr. J. A. Ryle, Mr. A. J. Walton, and Mr. Herbert J. Paterson.

**Friday, Feb. 3rd.**

LARYNGOLOGY: at 4.45 P.M.
Cases and Specimens will be shown at 4 P.M.

ANÆSTHETICS: at 8.30 P.M.
*Discussion:* On "The Uses and Limitations of $N_2O$ and $O_2$ Anæsthesia," to be opened by Dr. A. L. Flemming.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W. 1.
MONDAY, Jan. 30th.—9 P.M., First Lettsomian Lecture: Sir Leonard Rogers: Amœbic Liver Abscess; Its Pathology, Prevention, and Cure.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
FRIDAY, Feb. 3rd.—5 P.M., Hunterian Lecture: Prof. Kenneth M. Walker: The Nature and Cause of Old Age Enlargement of the Prostate.

FELLOWSHIP OF MEDICINE SPECIAL POST-GRADUATE COURSE.
MONDAY, Jan. 30th.—10 A.M., Hospital for Epilepsy and Paralysis: Dr. Riddoch: Common Disorders of the Nerve System in Childhood. 1.15 P.M., St. George's Hospital: Dr. Donaldson: Post-mortem Demonstrations.
TUESDAY.—11 A.M., St. Marylebone General Dispensary: Dr. Eric Pritchard: The Diet from Weaning to the End of the Second Year. 2 P.M., Cancer Hospital: Mr. R. H. Jocelyn Swan: Demonstrations and Operations.
WEDNESDAY, Feb. 1st.—10 A.M., Hospital for Epilepsy and Paralysis: Dr. Wilfred Harris: (1) Encephalitis Lethargica; (2) Trigeminal Neuralgia; (3) Sciatica. 2.30 P.M., St. Peter's Hospital: Mr. F. J. Barrington: Genito-Urinary Tuberculosis.
THURSDAY.—10 A.M., Hospital for Epilepsy and Paralysis: Dr. Feiling: Syphilis of the Central Nervous System. 3 P.M., St. Marylebone General Dispensary: Dr. Eric

Pritchard: Management of Difficult Cases: the Syphilitic, Tuberculous, and Marasmic. 6 P.M., Middlesex Hospital: Dr. MacCormac: V.D. Methods and Selected Cases.

FRIDAY.—10 A.M., Hospital for Epilepsy and Paralysis: Dr. Wilson: (1) Epilepsy; (2) Exophthalmic Goitre. 2 P.M., Cancer Hospital: Mr. Cecil Rowntree: Demonstration and Operations.

SATURDAY.—11.30 A.M., Western Hospital, Fulham: Dr. R. M. Bruce: Selected Cases of Infectious Diseases. 2 P.M., Hospital for Consumption and Diseases of the Chest.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, Jan. 30th.—5 P.M., Dr. Arthur Saunders: Cirrhosis of Liver.

TUESDAY.—5 P.M., Mr. Addison: Tumours of the Breast.

WEDNESDAY, Feb. 1st.—5 P.M., Dr. Burnford: Diagnosis of Infective Diseases.

THURSDAY.—5 P.M., Dr. J. Strickland Goodall: Goitre Hearts. (Open to all Medical Practitioners.)

FRIDAY.—5 P.M., Mr. MacDonald: Retention of Urine.

Daily:—10 A.M., Visit of Post-Graduates to Wards. 2 P.M., In-patient, Out-patient Clinics and Operations.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, Marylebone, W.

MONDAY, Jan. 30th.—5.30 P.M., Sir S. Russell-Wells: The Facies in Heart Conditions.

Daily:—10 A.M. and 2 P.M., Out-patients and In-patients.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC POST-GRADUATE COURSES, Queen-square, W.C.

MONDAY, Jan. 30th.—12 noon, Dr. Greenfield: The Neuron. 2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Dr. James Taylor: Tabes Dorsalis (1).

TUESDAY.—2 P.M., Dr. Grainger Stewart: Out-patient Clinic. 3.30 P.M., Dr. James Taylor: Tabes Dorsalis (2).

THURSDAY, Feb. 2nd.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., The Pathogenesis of Involuntary Movements.

FRIDAY.—2 P.M., Dr. Gordon Holmes: Out-patient Clinic. 3.30 P.M., Dr. Collier: Tremor.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

THURSDAY, Feb. 2nd.—4 P.M., Dr. Frew: Pain in Infancy.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, 49, Leicester-square, W.C.

THURSDAY, Feb. 2nd.—6 P.M., Chesterfield Lecture, Dr. J. L. Bunch: Drug Eruptions.

BRITISH MEDICAL ASSOCIATION (CHESTERFIELD BRANCH) POST-GRADUATE COURSES.

FRIDAY, Feb. 3rd.—(At Chesterfield Royal Hospital Board Room) 2.30 P.M., Prof. Hall: The Diagnosis of Organic Nervous Disease. 3.15 P.M., Dr. Kerr: Early Cancer of Larynx.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, Jan. 31st.—4.30 P.M., Dr. E. D. Telford: Diagnosis of Chronic Joint Disease in Children.

ANCOATS HOSPITAL.

THURSDAY, Feb. 2nd.—4.30 P.M., Mr. Diggle: The Causes and Diagnosis of Stridor.

ST. MARY'S HOSPITALS POST-GRADUATE LECTURE, Whitworth-street West Branch, Manchester.

FRIDAY, Feb. 3rd.—4.30 P.M., Dr. Clifford: Albuminuria and Eclampsia.

MANCHESTER FRENCH HOSPITAL, POST-GRADUATE LECTURES, 24, Acomb-street, Whitworth Park.

THURSDAY, Feb. 2nd.—4.30 P.M., Mr. N. C. Haring: Some Common Causes of Deafness.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.

Lectures on Tuberculosis and Public Health.

WEDNESDAY, Feb. 1st.—4 P.M., Dr. A. Stanley Griffith: The Virulence of Tubercle Bacilli and the Circumstances under which it may Vary.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, W.

THURSDAY, Feb. 2nd.—3 P.M., Sir Napier Shaw: Droughts and Floods (1).

FRIDAY.—9 P.M., Lt.-Col. Sir Francis Younghusband: The Mount Everest Expedition.

# Appointments

CARTON, W., M.R.C.S., L.R.C.P. Lond., D.M.R. & E. (Cantab.), has been appointed Assistant Radiologist (Therapeutical) to the Middlesex Hospital.

Certifying Surgeons under the Factory and Workshop Acts: THOMPSON, W. H., M.R.C.S., L.R.C.P. (Bradford West); DAVIES, D. L. (Cardigan).

# Vacancies.

*For further information refer to the advertisement columns.*

*Aberdeen Royal Infirmary.*—Asst. P.

*Birmingham and Midland Hospital for Women.*—Visiting Path. £150.

*Birmingham General Hospital.*—Res. M.O. £155. Two H.P.'s and one H.S. Each £100.

*Birmingham, Romsley Hill Sanatorium.*—Med. Supt. £600.

*Birmingham, Selly Oak Hospital.*—Res. Asst. M.O. £300 to £400.

*Bootle Borough Hospital.*—Jun. H.S. £150.

*Bromley Borough.*—Asst. M.O.H. £500.

*Buenos Aires British Hospital.*—Asst. Res. M.O. £450.

*Burton, Derbyshire, Devonshire Hospital.*—Asst. H.P. £150.

*Charing Cross Hospital.*—Asst. S.

*Chester Royal Infirmary.*—Hon. P. and Hon. Ophth. S.

*Chesterfield and North Derbyshire Royal Hospital.*—Jun. H.S. £175.

*Croydon County Borough.*—Res. Med. Supt., &c. £500.

*Hospital for Sick Children, Great Ormond-street.*—Res. Med. Supt. £300.

*Italian Hospital, Queen-square.*—Hon. Asst. Anæsth.

*Leeds Public Dispensary.*—Sen. Res. M.O. £250.

*London Homœopathic Hospital, Great Ormond-street.*—Phys. for Dis. of Women.

*London Hospital, Mile End.*—Clin. Assts.

*Lowestoft, St. Luke's Hospital.*—Second Asst. M.O. £579 14*s.*

*Manchester, Baguley Sanatorium.*—Second Asst. M.O. £350.

*Manchester Children's Hospital, Gartside-street.*—Asst. M.O. £200.

*Manchester Children's Hospital, Pendlebury.*—Res. M.O. £150.

*Mile End Hospital, Bancroft-road.*—Second Asst. M.O. £400.

*Newcastle-upon-Tyne, City Hospital for Infectious Diseases.*—Med. Asst. £350.

*Nottingham Children's Hospital.*—Res. H.P. £180.

*Paisley, Royal Alexandra Infirmary.*—Pathologist. £500.

*Plaistow Fever Hospital.*—Second Asst. M.O. £200.

*Plymouth Royal Eye Infirmary.*—Hon. Anæsth.

*Portsmouth Workhouse, Children's Home.*—First and Second Asst. Res. M.O.'s. £350 and £300.

*Reading, Royal Berkshire Hospital.*—Hon. M.O. for X ray Dept.

*Royal Chest Hospital, City Road.*—P.

*Royal Free Hospital, Gray's Inn-road, W.C.*—Clin. Assts.

*Royal Northern Hospital, Holloway.*—P. to Out-patients.

*St. Thomas's Hospital.*—Visiting Anæsth.

*Salisbury General Infirmary.*—Hon. Pathologist and Bacteriologist.

*Seamen's Hospital, Albert Dock.*—H.S. £150.

*Sheffield Royal Hospital.*—Asst. Cas. O. £150.

*Shrewsbury, Royal Salop Infirmary.*—H.S. £275.

*Stoke-on-Trent County Borough.*—Asst. Tub. O. £601.

*University of London.*—Examiners.

*West End Hospital for Nervous Diseases.*—M.O. £200.

*Wolverhampton and Midland Counties Eye Infirmary.*—H.S. £200.

The Chief Inspector of Factories, Home Office, S.W., announces the following vacant appointments: Aberdeen, Long Sutton (Lincoln), Manchester (West Central), Reading (Berks).

# Births, Marriages, and Deaths.

## BIRTHS.

HINGSTON.—On Jan. 16th, at a nursing home, Wandsworth Common, the wife of Captain H. Hingston, I.M.S., of a daughter.

MCNEILL.—On Jan. 20th, at Deepdene, Cnislehurst, the wife of George McNeill, M.B., F.R.C.S Edin., of a son.

NOALL.—On Jan. 20th, 1922, at Gorse Cottage, Strensall, York, the wife of W. Paynter Noall, M.S., F.R.C.S., of a son.

## MARRIAGES.

WILLIAMS—DAVIES.—On Jan. 18th, 1922, at Aberpergwm Church, Oscar Williams, M.B., B.S., B.Sc., Ty Gwalia, Llanelly, third son of David Williams, Gogerddan, Llanelly, to Elizabeth, eldest daughter of Noah Davies, Ynysycwm, and Mrs. Davies, Greenfield House, Glyn Neath.

## DEATHS.

BARKER.—On Jan. 20th, at "The Haven," Mill-road, Worthing, Lieut.-Colonel Frederick Rowland Barker, M.B.E., M.B. Lond., R.A.M.C. (retired), aged 68 years.

LE MOTTÉE.—On Jan. 18th, Lieut.-Colonel George Herbert Le Mottée, R.A.M.C. (retired), aged 71 years.

RAYNER.—On Jan. 18th, at Brantwood, Woking, Edwin Rayner, M.D., F.R.C.S., J.P. (late of Stockport), aged 77 years.

SYMPSON.—On Jan. 15th, at Deloraine Court, Lincoln, Edward Mansel Sympson, M.A., M.D., J.P., Lieut.-Colonel R.A.M.C. (T.), in his 62nd year.

WHITINGTON.—On Jan. 15th, at Tuxford, Charles Edward Whitington, M.R.C.S.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

## INDEX TO "THE LANCET," VOL. II., 1921.

THE Index and Title-page to Vol. II., 1921, which was completed with the issue of Dec. 31st, will shortly be published. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2.

# Notes, Short Comments, and Answers to Correspondents.

## THE COST OF LIVING.

A RECENT issue of the *Economic Review* quotes from *Wirtschaft und Statistik* a statistical comparison of the cost of living in various European countries and the U.S.A. during the past few months based upon the year 1914 as a standard. In most cases food alone is taken as the unit of comparison, but in the figures given for Berne* (Switzerland) and Sweden* heat and light are included along with food.

| — | U.S.A. | England. | France (Paris). | Belgium. | Italy (Florence). | Switzerland (Berne).* | Sweden.* | Norway. | Finland. | Germany. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1914 .. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1920 | | | | | | | | | | |
| Jan. .. | 193 | 235 | 290 | 382 | 329 | — | 298 | 295 | 898 | — |
| April .. | 207 | 246 | 358 | 456 | 371 | — | 297 | 305 | 920 | 1123 |
| July .. | 194 | 291 | 420 | 523 | 438 | 264 | 306 | 340 | 1172 | 1129 |
| Oct. .. | 215 | 262 | 373 | 459 | 413 | — | 297 | 319 | 982 | 1156 |
| 1921 | | | | | | | | | | |
| Jan. .. | 169 | 263 | 410 | 493 | 492 | — | 283 | 334 | 1174 | 1265 |
| Feb. .. | 155 | 249 | 382 | 482 | 484 | — | 262 | 308 | 1107 | 1191 |
| March . | 153 | 238 | 359 | 434 | 517 | 200 | 253 | 299 | 1137 | 1188 |
| April .. | 149 | 232 | 328 | 417 | 522 | 231 | 248 | 300 | 1107 | 1171 |
| May .. | 142 | 218 | 317 | 407 | 523 | 226 | 237 | 292 | 1117 | 1152 |
| June .. | 141 | 220 | 312 | 419 | 481 | 222 | 234 | 290 | 1147 | 1175 |
| July .. | 145 | 226 | 306 | –10 | 451 | 216 | 232 | 292 | 1278 | 1274 |
| August | 152 | 225 | 317 | 447 | 465 | 215 | 234 | 297 | 1324 | 1399 |
| Sept. .. | 150 | 210 | 329 | 423 | 488 | 211 | 228 | 290 | 1359 | 1418 |
| Oct. .. | — | 200 | 331 | 434 | 520 | 209 | 218 | 288 | 1357 | 1532 |
| Nov. .. | — | — | — | — | 532 | 204 | — | 281 | 1286 | 1914 |

The figures for England may be supplemented from the *Labour Gazette* as follows: 195 for Nov., and 185 for Dec., 1921.

## HYGIENE AT PUBLIC ENTERTAINMENTS.

### A REPORT ON VENTILATION AND EYE-STRAIN AT THEATRES AND KINEMAS IN JOHANNESBURG.

IN September, 1921, an important joint report, based on a series of investigations of ventilation of theatres and kinema halls and prevention of eye-strain in kinemas during the year, was presented to the Johannesburg Town Council by Dr. Charles Porter, M.O.H., and Dr. E. H. Cluver, professor of physiology in the University of South Africa. In tracing the history of ventilation standards, they pointed out that modern research by Haldane, Paul, and Leonard Hill, with experiments on humans confined in closed chambers, and Haldane's investigations for the British Admiralty of the atmosphere of diving tanks and of submarines, have seriously discounted the value of the carbon dioxide test, and that suitable air-movement, temperature, and moisture are now recognised as the essential factors for the satisfactory "ventilating function of the skin." They quoted the New York State Ventilating Commission's statement that in America the desirable temperature for an auditorium is from 58° to 68° F., and preferably 62° upon the entrance of the audience and 65° the maximum during the performance; relative humidity should usually not be less than 30 per cent. nor greater than 60 per cent.; and, as regards air-movement, 30 c.ft. of air per occupant per minute is found in practice to be the minimum which is necessary. The investigation was undertaken to ascertain the actual conditions obtaining in the theatres and kinema halls of Johannesburg, to compare records of movement, temperature, and moisture with the carbon dioxide readings, and to determine a practical standard of good ventilation. The various buildings were visited during the performances without any previous notice; determinations were made on each floor, whenever possible near the centre; and, as a check, readings were in each case also taken in the open air. The cooling-rate was determined by means of Dr. Leonard Hill's dry and wet kata-thermometer; for purposes of comparison, the carbon-dioxide content was also registered in many cases by means of Haldane's portable apparatus. The amount of suspended dust was determined on a few occasions, and the feeling of comfort or otherwise, representing the average of the voting of the observers present, was recorded by Winslow's scale (1 cold, 2 cool, 3 comfortable, 4 warm, and 5 hot).

As regards eye-strain in kinema halls, the Johannesburg investigations followed and supplemented the lines of a similar inquiry in April, 1919, at the instance of the London County Council and the Illuminating Engineers' Society. The report is necessarily somewhat technical, and may be summarised as follows:—

A.—*Ventilation.*

1. In South Africa the carbon-dioxide standard is entirely unsatisfactory as a test of efficient and comfortable ventilation.

2. The three foremost essentials of good ventilation are: (*a*) A moderate air-temperature; (*b*) adequate air-movement; and (*c*) a low percentage of moisture in the air.

3. For New York auditoria the standards suggested are a temperature of from 58° to 68° F., a relative humidity, with ordinary temperatures of not less than 30 per cent. and not more than 60 per cent., and an air-movement of 30 cub. ft. per minute.

4. Such standards, if accepted, require separate measurement, whereas by Dr. Leonard Hill's kata-thermometer the combined effect of air-temperature, air-moisture, and air-movement can be accurately and easily gauged.

5. For Johannesburg theatres and kinema halls a dry-kata figure of not less than 5 and a wet-kata figure of not less than 16 indicate a reasonably good condition, and that, of these records, the dry-kata figure is, for sedentary gatherings, the more important.

6. These figures (dry-kata 5 and wet-kata 16) are recommended as the future standard for ventilation of theatres, kinema halls, and other places of public amusement; provided that in no case shall the dry-kata figure indoors be required to be higher than 1·5 below that obtained in the open air immediately outside the "house"; and, in addition, that for reasons of public comfort, if not of strict health necessity, such places be kept free from unpleasant odours.

7. The theatres and kinema halls in Johannesburg which at present fail to reach this standard can be readily made to do so by the installation of more fans and punkahs and by freer use of existing facilities for ventilation.

8. For factories and workshops a dry-kata figure of 6 and a wet-kata figure of 18 are recommended where reasonably practicable.

9. The Council is advised to amend accordingly its building and public health by-laws, and to notify such amendment to the Minister of Mines and Works and the Minister for Public Health.

10. From the results of a limited number of determinations suspended dust was considered neither excessive nor dangerous.

B.—*Eye-strain in Kinemas.*

10A. Unsuitable visual angles (frontal and lateral), flicker, film defects, bad focusing during projection, and too rapid screening are the chief causes of eye-strain and discomfort.

11. In nearly all the Johannesburg kinema halls the desirable limit of 35 degrees for the angle of elevation is considerably exceeded, the figures, in such cases, varying from 40 to 60 degrees; in a majority of cases the angle of lateral view is well above the permissible minimum of 25 degrees.

12. Bad focusing, flicker, and film defects are of infrequent occurrence in Johannesburg; where screenings are controlled by the Theatres Trust the average speed limit is 1000 ft. in 15 minutes.

13. The attention of the African Theatres Trust and of African Films, Ltd., is invited to the recommendations and suggestions of the London Joint Committee, 1919, in regard to the causes and prevention of eye-strain.

14. That the building by-laws in regard to places of public amusement be amended to embody, for application to *new* kinema halls, the requirements as to seating specified by the London Joint Committee, 1919.

## HOMINIDÆ VERSUS INSECTA.

AN abridgement of Dr. L. O. Howard's presidential address last month before the American Association for the Advancement of Science, which appears in *Nature* of Jan. 19th, whets the appetite for the full text of the address. Dr. Howard deals with two dominant types of the animal kingdom: the one, a group of vertebrates with what Count Korzybski has described as the "time-binding" faculty—man preserves the history of the race and profits by his knowledge of the past to improve the future; the other, a group of arthropods which have carried the evolution of instinct to a marvellously fine point. Sea-urchins and snails, shut up in a citadel or coat of mail, are condemned to semi-sleep. The bodily structure of vertebrates, culminating in man, has enabled him, guided by acquired intelligence, to accomplish marvels; but insects in the course of ages have been modified and perfected in structure and function until their appendages have become perfect tools for the needs of the species, while their power of existing and multiplying in great variety of conditions and of subsisting upon an extraordinary variety of food has made them a most powerful rival of man.

The culminating arthropod type—the insect, and the culminating vertebrate type—man, are in fact disputing for the mastery of the world. Few people, Dr. Howard thinks, realise the critical nature of the situation. Injurious insects threaten human life from every point: in his food supply, both as to growing crops and after they are harvested and stored; in his meat animals, in his comfort, in his clothing, in his habits, and in countless other ways. The insect is in many ways better fitted for existence on this earth than is man himself. It constitutes a much older geologic type, in existence for ages before man appeared. With all this in view, it will be necessary for the human species to bring the great group of insects under control, and to do so will demand the services of skilled biologists—thousands of them. This is the climax of Dr. Howard's address. The message is:—Let departments of biology in universities and colleges see to it that a concerted movement is started to train the men needed for the crusade; and we find the advice very sound.

## CENSUS OF "SAFETY WORKERS" IN U.S.A.

THE census of safety and health workers now being taken by the National Safety Council in all parts of the United States is to include all physicians, surgeons, nurses, and other persons engaged in public and industrial health work, and will be the first attempt to find out the numbers, names, and working districts of all citizens and organisations connected with such work. The Council urge everyone who is professionally engaged—for the whole or part of his time—in industrial or public accident prevention or industrial health work to assist in the taking of this census by filling in details of the activities in which they are engaged and sending them to the Council's headquarters, 168, North Michigan Avenue, Chicago.

## ADVICE ON DIET.

AFTER a long course of freak books on diet, it is a consolation to come across a book on food ("Eat and Grow Thin: The Mahdah Menus." London: G. P. Putnam's Sons, Ltd. 1921. Pp. 94. 3*s.* 6*d.*) which is for the most part sensible. The meals prescribed are quite appetising, and are certainly calculated to prevent the eater from getting fat. The list of forbidden foods on p. 37 includes cheese, butter, olive oil, or grease of any kind, and rather surprisingly milk. Sugar is prohibited, but with a curious inconsistency beetroot and carrot are allowed. There are various recipes for salads, but a good salad without oil is difficult to imagine. The prohibition on all sorts of wine is somewhat drastic—light clarets, or light white Burgundy might be allowed. But the book will be found more useful than most of its kind.

## BOHEMIAN FAIRY STORIES.

WE have received an attractively illustrated volume of fairy stories based upon the writings of Bozena Nemcova, who delineated peasant life in Bohemia half a century ago and was the creator of modern Czech romance. Her story "The Grandmother" is well-known throughout Czecho-Slovakia. Prof. Tille, of the Charles University of Prague, has collected the stories scattered through the writings of Nemcova to provide a book for children and the collection has been done into English by William H. Tolman, Ph.D., sometime regional director of the Foyer du Soldats in Bordeaux and later adviser in social economy to the Ministry of Social Welfare in Prague. The text is charmingly embellished with illustrations, many of them in colour, by Scheiner, academician of Prague. English children will here find themselves initiated after the manner of Grimm or Hans Andersen into the popular myths and legends of Bohemia. It can be obtained through any bookseller or direct from the publisher, Mr. B. Kocí, Prague, Czecho-Slovakia. Price 6*s.*

## "ARTICLES OF BELIEF."

IN his presidential address delivered to the Cape of Good Hope Eastern Province Branch of the British Medical Association, and reprinted in pamphlet form from the *South African Medical Record*, Dr. E. G. Dru Drury dealt with various subjects of interest to the medical profession in its relations with the rest of the world. These subjects—homœopathy, bone-setting, mental healing, materialism, and mental hygiene—he discussed from the standpoint of "stock-taking"; and in emphasising the need for a preventive science of mind presented the following five articles of belief for members of a profession whose philosophy he described as neither the gross materialism of brain-secreted thought nor an ultra-idealistic view of matter as "an error of mortal mind."

1. Mind, like body, recapitulates the history of the race; it is useless to offer philosophy to minds occupied with totem and taboo, with myth and folklore, for mind does not keep pace with body, and some adults are not grown up in mind.

2. Men are born unequal, with variable tissue stuff; sour grapes are eaten by the fathers, and the children's teeth are on edge—in expiation not of moral error, but of indifference to the necessity for application of the teaching of eugenics.

3. Inequality of achievement is to be expected; there are careers for the hardy Peary and for the weakly Sir Isaac Newton. No procrustean bed of education will fit all children; three grades may be necessary for backward, normal, and brilliant types.

4. The horoscope of antiquity should be replaced by a vital chart renewed quinquennially; no one need be unhealthy in body or unsound in mind. Emotional strain and onset of fatigue can already be estimated; the tests evolved for aviation are quite other than those of ordinary education.

5. Salvation lies in enthusiastic work—changeable for the fickle, intensive for the strenuous, with two hours' market gardening daily for everyone. "Ergotherapy," a real contact with life, is a great curative agent for body or mind. Life and work must be brought into sharply-focussed consciousness, for in Plato's words "an unexamined life is not worth living."

## COLONIAL HEALTH REPORTS.

*Falkland Islands.*—At the date of the last official report the estimated population was 3255, made up of 2771 males and 984 females. The birth-rate in 1919 was 20·3 per 1000 and the death-rate 8·2. The acting Colonial surgeon states that "the outstanding features are (1) the rarity of malignant diseases; (2) the rarity of venereal diseases; (3) the rarity of all forms of tuberculosis; (4) freedom from all infectious diseases; and (5) prevalence of alimentary disorders. A great number of children suffer from chronic tonsillitis, and during the first year laryngismus. The latter is attributed to a nervous erethism begotten by close confinement to ill-ventilated rooms. The question of intermarriage is becoming more serious every year, and is slowly but surely imparting the stamp of degeneration on the race. There is no such thing as systematic drainage; the only method of discharge is by open gutters, which on warm days are very offensive. Sixteen patients were admitted during the year to the King Edward Memorial Hospital."

*Uganda.*—In the annual report for the year ended March 31st, 1920, it is stated that the Protectorate covers an area of approximately 110,300 square miles, including 16,169 square miles of water. The population is estimated to be 3,062,551—viz., 948 Europeans, 4528 Asiatics, and 3,057,075 natives. A large increase in the number of deaths recorded in the Buganda and adjacent districts is entirely due to influenza, and but for the incidence of this disease the number of births and deaths would have been approximately equal. The decrease in the birth-rate in these districts is nevertheless serious, and the necessity of remedial measures in the form of a special anti-venereal campaign has been recognised, and action in this direction has already been decided on. On the other hand, there was a welcome reduction in deaths due to the four principal endemic diseases—cerebro-spinal meningitis, sleeping sickness, plague, and small-pox. In regard to meteorology, the following figures are given from the records taken at Entebbe, the seat of Government: Average rainfall for the last 20 years, 58·74 inches; average temperature for the last 16 years—max. 78·5°, min. 62 8° F.; mean daily sunshine, 5 hours 27 minutes. Two main rainy periods are anticipated annually. The first, the "long" rains, usually begin in March, and may continue through May and June. The second, or "short" rains, begin in September and extend through October, and occasionally November. Generally speaking, both seasons are experienced throughout the Protectorate. Much of the rain falls during the night or early morning, and seldom continues throughout the day. The climate, as a whole, though pleasant, cannot be considered healthy for Europeans.

*Fiji.*—The estimated population on Dec. 31st, 1920, comprised: Europeans, 5094; half-castes, 2834; Polynesians, 2540; Fijians, 88,680; Rotumans, 2110; Indians, 59,695; Chinese, 942; others, 709. The deaths during the year were: Europeans, 40 (0·78 per cent. of the population); half-castes, 10 (0·35); Fijians, 2029 (2·29); Indians, 389 (0·65); others, 47 (0·87). The Colonial Hospital in Suva provides separate accommodation for European, Indian, and Fijian patients. There are also four private wards. During the year 2235 patients, of whom 156 were Europeans, were admitted for treatment. At Levuka there is a branch hospital, to which the admissions during the year numbered 481. The War Memorial of the Colony is to take the form of an up-to-date hospital in Suva, with fully-equipped hospitals in the principal settlements throughout the group. Native Fijians generally obtain medical treatment at the 11 provincial hospitals controlled and supervised by district medical officers. During 1920 39 persons were admitted to the lunatic asylum at Suva, and 14 were discharged; there is separate accommodation for Europeans. The Government leper asylum is situated on the island of Makogai, and is under the management of the superintendent, Dr. P. T. Harper, who is assisted by eight

European nursing sisters and six Fijian nursing sisters, all greatly devoted to their work. During the year 11 lepers were conditionally discharged from the asylum. The total rainfall for 1920 varied at different stations from 53·70 inches to 274·85 inches, the latter being experienced at Salia Levu (Taviuni). The average shade temperature for the year was 75·9° F., the highest recorded being 91·0° on March 4th, and the lowest, 55·0° on July 3rd.

*Gibraltar.*—The estimated civil population on Dec. 31st, 1920, was 17,690, of whom 16,181 are fixed residents; 14,604 persons reside in the city or northern district, where the density of population is 140 persons per acre. The number of births among the fixed population was 375, equal to 23·2 per 1000. Aliens are not permitted to give birth in Gibraltar. The total number of deaths was 308, the crude death-rate per 1000 being 17·45; that from principal acute infectious diseases was 1·13 per 1000, and from pulmonary tuberculosis 1·8 per 1000. Mortality from cancer was 58·5 per 1000, and infantile mortality 128 per 1000. The general sanitary condition was excellent, and there was no disease of an epidemic nature. The climate of Gibraltar is mild and temperate, though somewhat hot and oppressive during the months of July and August. The meteorological record for 1920 shows 70·4° F. as the mean maximum temperature, the highest shade temperature being 95° on August 6th, and the lowest 37° on March 11th. The rainy season spreads over the period from September to May; the annual average rainfall is 35 inches, but in 1920 the unusually small record of 27·22 inches was registered. The high price of food and other commodities has continued to press hardly on all classes of the community. A strong committee was appointed to investigate and report on the housing question and the lack of accommodation in Gibraltar, which continues to be one of the most difficult of local problems. Practically every available space for building is already taken up, and it is not, therefore, feasible to provide additional housing accommodation, whilst, for military reasons, it is essential to guard against an increase in population. Hence, immigration into Gibraltar is not only discouraged, but actually prohibited. Emigration is directed mainly to the United States and to South America, but the Gibraltarian is not generally inclined to emigrate, and prefers to remain on the Rock in spite of the congestion existing.

*Basutoland.*—According to the report for 1920–21 typhus fever may now be regarded as endemic in the territory. There were during the year 547 cases and 94 deaths. The problem of dealing with typhus in a native territory like Basutoland, where a large proportion of inhabitants are domiciled in remote mountain villages, is beset with difficulties. First and foremost is the factor of the wide prevalence of the body louse, which is regarded by the people as a natural parasite, and they fail to understand why a parasite which has always been with them should be a source of disease. The overcrowding which obtains in most huts, the habit of visiting neighbouring villages, and congregating for beer drinks and local court cases, are also potent factors in the spread of the disease. It has often been possible to trace outbreaks to travellers who have visited infected centres which are nominally in quarantine. There is a certain resistance to restrictive measures coupled with indifference on the part of those who are not immediately concerned. Their cry is for medicine, yet the eradication of the disease depends on the delousing of the population. It is estimated that at least four-fifths of the population (equal to 400,000 souls scattered over an area of 11,700 square miles) are lousy. There was no case of small-pox during the year. 360 cases of enteric fever were reported; 182 cases were admitted to hospitals, with 31 deaths. It is considered that many of these cases were really typhus mistaken for typhoid; 6067 people were inoculated against typhoid, but early in July, 1920, owing to the presence of typhus in areas where typhoid coexisted in isolated cases, the inoculations were discontinued, as it was felt that the gathering of numbers of people from villages possibly infected with typhus might lead to further spread of that disease. Tuberculosis was less in evidence than in previous years; 176 male and 238 female patients were in the Leper Settlement on Dec. 31st, 1920. Six men and three women were discharged during the year as arrested cases. There were 14 births in the Settlement. The majority of the patients are reconciled to their lot, and are contented and happy. More ground has been broken up for them, and most of the able-bodied men have been given gardens to cultivate; a certain number of the women have also got land. The great difficulty at present is to find suitable labour for many of the women patients who are unable to do hard manual work. The general health in the Settlement has been good. The medical officer has been using sodium morrhuate on a considerable number of cases, and he reports that, although it is not a specific, it improves the body-weight and well-being of the patients, and thereby tends to keep the disease in check.

## THE SEPTIC HAND-SHAKE.

So long as the actual virus of influenza remains unidentified the mechanism of its transference must remain in doubt. In the meantime, whatever precautions we may take must be guided by analogy, and some at all events may prove to be as ill-directed as the measures taken for the avoidance of malaria before the mosquito was recognised as the chief factor in its transmission. Colonel W. G. King writes to suggest the possibility of finger contamination playing an important part in the spread of influenza. He instances the freshly licked stamp and the hand soiled by nose-blowing. An anonymous correspondent would taboo the hand-shake altogether and substitute some such salute as placing a couple of fingers to the forehead. There is much to be said for this, and not only in relation to influenzal infection. A popular kinema film accustomed the public some years ago to the Roman salute of recognition, which differs not so widely from that adopted by military folk and their friends in these later times. It is difficult to justify the cumulative transference of all kinds of particulate enormities which must take place daily from indiscriminate hand-shaking. The possibilities of infection increase in geometric progression, and calculation almost fails before the distributive power of the kindly host or hostess at a large reception who unwittingly transfers the contents of a guest's uncleanly palm to a multitude of others and thence to their home circles.

## REMUNERATION OF STUDENT NURSES.

ON the ground that a large number of trained nurses are unable to obtain posts worth more than £60 a year the *Nursing Times* of Jan. 14th protests against the high salaries now being offered to attract young women into the profession. A recent advertisement for probationers for a Poor-law infirmary at a salary of £14 a year plus a bonus of £42 18*s.*, making a total salary for the first year of £56 18*s.*, is described as ridiculous, especially in view of the fact that the probationer will enjoy an eight-hour day. The suggestion is made that high salaries for probationers leave nothing for the pupil-nurse to look forward to, and are, moreover, unfair to the trained woman. We sympathise with the desire to increase the difference between the pay of the probationer and that of the staff-nurse or sister, while we hold that pressure should be exerted at the other end of the scale. It is surely good for the professional standing of the trained nurse that the low scale of pay, scanty leisure, and menial work demanded of the probationer, which have emptied the market, should be revised, and that authorities should be forced to reconsider working hours and to lessen the manual drudgery required of the student nurse. Laws of supply and demand are potent things. It may well be that a hospital whose authorities had the courage and foresight to offer higher pay and better conditions to ward maids, and to institute a two-years' course for student-nurses who had passed an educational test and produced certificates of proficiency in housework, would find that they could obtain fees from student-nurses that would compensate them for the cost of the extra domestic help. Incidentially, they would be taking a step towards freeing British hospitals of the reproach that they sweat their nurses.

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*C. C. H.*—Bartlett's method is reputed to be one of the best for keeping catgut supple during sterilisation. The string of coils is dried for one hour at 180° F., and for a second hour at 220° F., the change from the lower to the higher temperature being made very gradually. The gut is then placed in liquid albolene and brought up to a temperature of 320° F., for an hour, being stored thereafter in a 1 per cent. solution of iodine in methyl alcohol.


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